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APPLETON SERIES IN SUPERVISION AND TEACHING

EDITED BY

A. S. BARR AND WILLIAM H. BURTON

THE SUPERVISION OF ELEMENTARY SUBJECTS

APPLETON SERIES IN SUPERVISION AND TEACHING

EDITED BY
A. S. BARR

Associate Professor of Education in the University of Wisconsin; Formerly Assistant Director in Charge of Supervision in the Detroit Public Schools.

WILLIAM H. BURTON

Professor of Education in the University of Chicago; Formerly Professor of Education in the University of Cincinnati and Director in Charge of the Supervision of Teachers in Training, Cincinnati Public Schools.

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THE SUPERVISION OF ELEMENTARY SUBJECTS

EDITED BY

WILLIAM H. BURTON

ASSOCIATE PROFESSOR OF EDUCATION IN THE UNIVERSITY OF CHICAGO

CONTRIBUTORS

THE EDITOR AND

WALTER BARNES
FREDERICK G. BONSER
L. J. BRUECKNER
ELLIOT R. DOWNING
EDGAR B. GORDON
HOWARD C. HILL
MARY G. KELTY
HENRY M. LEPPARD
JOSEPH S. TAYLOR
WILLARD F. TIDYMAN
FLORENCE WILLIAMS
JESSE FEIRING WILLIAMS
LAURA ZIRBES

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PREFACE

THIS volume is an effort to supply the generalist (superintendent, assistant superintendent, general supervisor, building principal) with a brief, compact summary of material of value to him in supervising the various elementary-school subjects. It has distinctly not been prepared with the special-subject supervisor in mind. For the latter specialists, separate volumes for each subject would be desirable.

The generalist is not expected to be conversant with the intimate details of teaching and supervising the individual subjects. His supervisory activities are perforce confined to analysis and suggestion on the level of general principles. Confronted with complex problems involving detailed special knowledge, the generalist should call in the proper staff specialist. In smaller places where special supervisors are not available the situation must simply proceed on a less specific level. In either event a compact summary of general principles and procedures in the various subjects, such as this volume attempts, should be of value to the general worker.

Outstanding specialists were invited to prepare the various chapters. The editors supplied each author with a general outline of the theory and principles of supervision espoused by them and presented in the first chapter. They supplied each author also with a general outline of points to be covered in each chapter. The contributors were free, of course, to differ with and vary from the outline provided all essential points were eventually included. Therefore a reasonable unity will be found throughout the book, varied by the natural and proper individual reactions of the different writers. The editors further advised each author

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that he was free to present his own or any individual theory for the organization and teaching of his subject provided only that he mentioned any prominent theories differing from his own. Several chapters, therefore, represent the views of certain outstanding authorities rather than eclectic treatments. Both authors and editors acknowledge the existence and importance of views other than their own.

It is hoped that the material will be of immediate practical use to generalists in scrutinizing their own situations. Containing as it does, succinct, compact summaries, the book should enable superintendents and principals to answer to their own satisfaction such questions as the following:

1. Are the aims and objectives of my teachers in (any given subject) in accord with the best modern thought?
2. Are the materials being used such as are approved by experts for the achievement of these aims?
3. Is our course of study in line with modern schemes of organizations?
4. Are the methods and devices being used psychologically sound and fitted to the special problems of the subject?
5. Are the standard tests available sound, constructed in terms of legitimate objectives, and properly used?
6. Are informal quizzes, home-made objective tests, written examinations, etc., soundly constructed and properly used?
7. Is the equipment available adequate, desirable, and properly used?
8. Are recent sources of material known to and used by the teachers?

Other questions will doubtless be added by those using the book. In short, the object is to supply the general supervisory officer with information and instruments by means of which he can make a general analysis and evaluation of teaching and supervision in his unit. The book is not designed for use by special supervisors.

A. S. B.
W. H. B.

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THE SUPERVISION OF ELEMENTARY SUBJECTS

CHAPTER I

A GENERAL THEORY OF SUPERVISION

In order to save space and to enable the contributing authors to devote their entire attention to special supervisory problems in their respective fields, a general theory of supervision is laid down in advance. This chapter will set forth a general view of the functions and principles of supervision. The individual chapters to follow will not repeat any general discussion, but will proceed to discuss special problems arising in the performance of general functions.

What, then, is supervision? Since general definitions of supervision have been developed in detail elsewhere, space will not be devoted here to building up item by item a satisfactory definition, or to justifying the definition presented.[1] It is enough to say that great progress has been made since the early days when supervision was defined as:[2]

> Supervision is taking the broad view, the general view, and seeing the back and middle grounds as well as the foreground

[1] For such detailed discussion, *see* A. S. Barr and W. H. Burton, *The Supervision of Instruction* (D. Appleton & Co., 1926), Ch. i.

[2] L. D. Coffman, "The Control of Educational Progress through School Supervision," *Proceedings* of the National Education Asso-tion, Vol. 55 (1917), p. 187.

with its details. . . . Supervision is the vision in the old and beautiful sense of seeing things invisible.

The supervisor himself has come a long distance since the days when he was directed [3]

. . . to cast a genial influence over his schools, but otherwise not to interfere with the work.

An excellent brief definition is to be found in a statement by Elliott, in which he says: [4]

Supervisory control is concerned with *what* should be taught, and *when* it should be taught; *to whom, by whom, how* and *to what purpose.*

Somewhat more explicit, but still a general statement, is that of Dunn: [5]

Instructional supervision, therefore, has the large purpose of improving the quality of instruction, primarily by promoting the professional growth of all teachers, and secondarily and temporarily by correcting deficiencies of preliminary preparation for teaching by the training of teachers in service.

A suggested delimitation of the field of supervision. Despite some differences in wording and minor disagreements regarding inclusion or exclusion of some items, there is general agreement on the broad outlines of the field of supervision. The outline that follows is suggested as a proper statement of general functions. The succeeding chapters will make specific application to the various fields. As stated in the preface, the generalist cannot be expected to solve the complex problems peculiar to all the various fields. The combination of general and special material in this vol-

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[3] *Ibid.*

[4] E. C. Elliott, *City School Supervision* (World Book Co., 1914), p. 12.

[5] Fannie W. Dunn, "What Is Instructional Supervision?" *Proceedings* of the National Education Association, Vol. 61 (1923), p. 763.

ume should, it is hoped, enable him to view the work of his teachers with much more understanding than otherwise. Superintendents and principals should be enabled to make preliminary analyses and to solve many everyday problems, and to be guided in their calls for assistance from the special supervisors.

1. *The Direct Improvement of Classroom Teaching*
   - (*a*) Classroom visitation
   - (*b*) Individual and group conferences
   - (*c*) Directed teaching
   - (*d*) Demonstration teaching
   - (*e*) Directed observation
   - (*f*) Development of standards for self-improvement

2. *The General Improvement of Teachers in Service*
   - (*a*) Stimulation of professional reading
   - (*b*) Promotion of attendance at summer school, extension classes, etc.
   - (*c*) Preparation of written, printed, and mimeographed bulletins, circulars, bibliographies, reviews, etc.
   - (*d*) Development of exhibits of school work and other visual aids illuminating good teaching
   - (*e*) Planning for participation in administrative and supervisory policies, in experimental teaching
   - (*f*) Provision of opportunities for self-analysis, self-criticism, and self-improvement
   - (*g*) Through good programs at teachers' meetings, conventions, and institutes
   - (*h*) Advising and securing leave of absence for study or travel
   - (*i*) Organizing intervisitation
   - (*j*) Development and maintenance of morale, or esprit de corps

3. *The Development of Curriculums and Methods of Teaching*
   - (*a*) Setting up objectives, studying subject matter and activities, experimentally testing materials, etc.
   - (*b*) Making and constantly revising courses of study
   - (*c*) Selecting textbooks, preparing standards of selection and distribution

(*d*) Preparing miscellaneous supplementary instructional material

(*e*) Giving expert assistance in selecting supplies and equipment, writing specifications, setting up standards, etc.

(*f*) Testing the efficiency of the course of study, textbooks, and other instructional materials

(*g*) Preparing descriptive lists of instructional materials, supplies, equipment, etc., with suggestions for use and care

(*h*) Determination of methods, diagnostic and remedial devices to include in course

4. *Research and the Experimental Study of the Problems of Teaching*
   (*a*) The experimental study of teaching procedures
   (*b*) Curriculum research as indicated above
   (*c*) Expert assistance in providing the physical conditions of learning
      (1) Buildings and building plans
      (2) Selection and standardization of instructional equipment, instructional supplies, etc.
   (*d*) Development of record forms
   (*e*) Constructing tests, standardized or otherwise, improving written examinations of traditional sort
   (*f*) Training teachers to use tests of all kinds
      (1) For purposes of diagnosis and remedial teaching
      (2) For purposes of classification
      (3) For determining progress and making comparisons
      (4) For purposes of guidance

5. *Inspection* (survey of the school system, the equipment, means of instruction, the service, the personnel, the pupils, and any other items)
   (*a*) Development of means of evaluating the personnel, equipment, methods of instruction, curriculum, and all other items pertaining to efficient instruction
   (*b*) Survey testing (use of tests to locate instructional shortcomings)

(*c*) Visitation for inspectional purposes (as differentiated from improvement and assistance purposes)
(*d*) Study and report on general instructional conditions

6. *The Development and Maintenance of Morale, or Esprit de Corps*
   (*a*) Through expertness in professional service rendered (Teachers will have confidence in and give allegiance to supervisors who are known to be experts)
   (*b*) Through a willing and unselfish expenditure of time and energy in meeting problems and in rendering service
   (*c*) Through administering supervision in a kindly, sympathetic and coöperative, but none the less firm, manner
   (*d*) Through inviting coöperation in the solution of the problems arising within the system
   (*e*) Through giving full credit for all contributions from the teaching staff
   (*f*) Through providing opportunity for the exercise of teacher initiative in experimental work

7. *The Performance of Professional and Semi-Administrative Duties*
   (*a*) Self-improvement (Activities listed under 2 above for the general improvement of teachers are equally applicable to the supervisor, that is, the supervisor should constantly improve through professional reading, attendance at summer schools, study during leave of absence, self-criticism, etc.).
   (*b*) Keeping up to date such records as are necessary to effective supervision
   (*c*) Interpreting administrative policy upon matters of instruction to teachers, principals, other administrative officers and other supervisors
   (*d*) Interpreting administrative policy on various matters to the general public through preparation of written articles, addresses, participation in activities of clubs, civic bodies, etc.
   (*e*) Expert advice to administrative officers charged with the selection, appointment, transfer, promotion, rating, and dismissal of teachers

(*f*) Developing teacher opinion and directing it in its effect upon the community (concerning school standards and aims, building programs, bond issues, salary increases, special programs, etc.)

It is obvious that supervision as defined above includes far more than classroom visitation and conference. The idea that supervision is limited to direct contacts with the teacher through visiting the classroom still persists in the minds of many educationists. The writer stands for the idea that the chief function of supervision is to further the pupil's learning and growth. Supervision is therefore coextensive with the range of things physical and spiritual which are *primarily* concerned with bettering conditions that surround learning. A direct attack may be made upon improving learning through the improvement of teaching. Visiting and conferring with teachers is fundamental here, but many other factors are involved: for example, selection of subject matter, of supplies, and equipment; scientific study of teaching problems; development and maintenance of professional spirit, etc.

General principles of control. Activities in any field should be guided by certain basic principles. Again space will be saved here by presenting without discussion a composite set embodying what is thought to be the best set forth in the pronouncements of several writers.[6]

1. *Supervision Must Center upon the Improvement of Teaching*
   (*a*) Should lead teachers to a broad vision of teaching problems, to a broad range of experience so that the work of one grade may be seen in relation to the work of other grades, to an understanding of needed revision, of necessary growth, and of the final outcomes of instruction

[6] For detailed discussion of principles, *see* Barr and Burton, *op. cit.*, Ch. iii.

(*b*) Should lead teachers to master the technique of classroom instruction, to establish good teaching habits, and to develop high standards of teaching efficiency

(*c*) Should lead teachers to persistent study of teaching problems, to experimentation, and to the use of classroom as a pedagogical laboratory in which to revise and improve methods of instruction

2. *Supervision Must Be a Clearly Defined, Definitely Organized Program.* This program should be progressive from year to year and should include:
   (*a*) A statement of the objectives of the program
   (*b*) The means for arriving at the established goal
   (*c*) The checks and standards by which progress is to be measured

3. *Supervision Must Distinguish Between Instruction and Administration.* This can be done:
   (*a*) Through the clearance of all administrative matters through regular administrative channels
   (*b*) Through the recognition of the principal as responsible for instructional conditions within his building
   (*c*) Through the recognition of instructional experts as responsible for general instructional conditions and for the adequacy of this program in the several fields of instruction

4. *Supervision Must Be Scientific.* This should find expression through:
   (*a*) A common scientific background for principals, teachers, and supervisors
   (*b*) The development of definite, well understood objective standards for judging and improving the quality of instruction (whatever standards are used should be known in advance by the one where teaching is being judged)
   (*c*) An experimental and laboratory study of instructional problems
   (*d*) Interpretative measurements of results

5. *Supervision, While Scientific, Must Be Kindly and Sympathetic, Sensitive to the Human Factors Involved*

   (*a*) Supervision should stimulate and encourage initiative, self-reliance, responsibility, and the intelligent interpretation of instructional policies on the part of the teacher, the principal, and the supervisor

   (*b*) Supervision must recognize and deal sympathetically with the problems of human relationships in their efforts to improve instruction

   (*c*) Supervision should represent "democratic leadership in a group of coworkers, to the end that the pupils of the schools may make the largest possible growth in desirable ideals, interests, knowledge, powers, and skills, with the least waste of energy, and the greatest amount of satisfaction to all concerned"

6. *Supervision Must be Democratic; A Coöperative Undertaking of Teachers, Principals, and Supervisors.* This can be accomplished:

   (*a*) Through the recognition of the distinctive contribution of each to the improvement of instruction

   (*b*) Through a clear definition of responsibilities

   (*c*) Through the realization that not only teachers but principals and supervisors as well are learners in the study and observation of classroom problems

   (*d*) Through the general encouragement and conservation of contributions from teachers as well as from the heads of departments, principals, and supervisors

   (*e*) Through the organization, evaluation, and coördination of the efforts of those concerned with the improvement of instruction

Supervision must be planned. As indicated above, any worth while supervisory program will proceed on the basis of a definite plan growing out of the needs of the situation. It is necessary for the generalist to understand the construction of supervisory plans either in order to make his

own, or to be able to coöperate intelligently with those of the specialist. The important steps seem to be:

1. Study or survey the situation by any available and suitable means in order to determine the needs of the system or building.
2. Construct a total list of needs, problems, defects, or new departures which may be made into definite objectives.
3. Select from this list a small number of problems and state them definitely as the objectives for the term or year.
4. Outline for each objective the specific and detailed procedures which it is hoped to utilize in achieving the ends sought. This must be flexible in operation. Flexibility will be aided by (*a*) keeping the plan simple and brief, and (*b*) providing for a maximum of teacher participation.
5. Outline clearly the criteria, tests, or checks which can be used fairly to determine the success or failure of the plan at the close of the period for which it was constructed.
6. Publish this plan in printed, mimeographed, or typewritten form. Place it in the hands of teachers, supervisors, principals, and, if necessary, devote a general meeting to explanation and discussion. (The extent to which teachers participated in constructing the plan originally will determine, in some measure, the course to be followed here.) [7]

Principles governing coördination of effort. From the foregoing it is evident that a number of officers, both general and special, will be carrying on supervisory activities. This necessitates clear understanding of duties and interrelationships. The following principles, largely self-explanatory, should be of assistance in the matter of coordinating effort:

1. Centralization of executive responsibility must be insisted upon.
2. There must be clear-cut definition of duty and functional assignment of responsibility.
3. There must be facility and mechanism for coöperation.

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[7] For detailed discussion of planning supervision, *see* Barr and Burton, *op. cit.*, Ch. iv.

4. Integration of educational outcomes is necessary and must be provided.

5. There must be flexibility in procedure and operation.[8]

BIBLIOGRAPHY

Desirable readings to go with this chapter have been indicated in the footnotes and will not be repeated here.

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[8] For detailed discussion, *see* F. C. Ayer and A. S. Barr, *The Organization of Supervision* (D. Appleton & Co., 1928), Chs. iii, v, vi, ix. For brief statement, *see* Barr and Burton, *op. cit.*, Ch. ii.

CHAPTER II

THE SUPERVISION OF ARITHMETIC

BY L. J. BRUECKNER

Professor of Elementary Education, University of Minnesota

Problems in the supervision of arithmetic. During recent years there have been many investigations in the field of arithmetic which relate directly to the problems of supervision. Emphasis has been placed on the application of scientific methods to the determination of the content of the curriculum, the measurement of pupil achievement by means of standard tests, the diagnosis of pupil difficulties in the various processes, and the preparation of more effective materials of instruction. The supervisor's task is to make the results of these investigations available for the teacher and to assist in applying these findings to the various aspects of instruction.

In recent years increased attention has been given to the social functions of arithmetic and the "tool" concept has been stressed much less than in the past. The "informational" rather than the "computational" side of arithmetic has been emphasized. Definite attempts have been made to apply the principles of modern child psychology to the teaching of arithmetic. This tendency is clearly reflected in modern textbooks and courses of study.

Investigations have also been made to determine the effectiveness of various methods of teaching arithmetic in the primary grades, the relative efficiency of certain methods of procedure in computation, the techniques that should

be used in the preparation of drill materials, and similar problems. While many of these investigations are inadequate and limited in scope on some questions there is rather conclusive evidence. Every supervisor must consider the following phases of instruction in applying the findings of research to the teaching of arithmetic:

1. The legitimate interests of pupils.
2. The analysis of the skills and abilities to be attained and the preparation of effective instructional materials to insure the development of skills to socially useful levels.
3. The need of providing for individual differences in rate of learning, interests of pupils, difficulties, and ability.
4. The contribution arithmetic can make to the development of desirable social qualities, such as self-direction, the ability to appraise success and failure of one's efforts, and the ability to consider intelligently the quantitative aspects of things.
5. The necessity of stressing the social applications and significance of the number system and of socializing the subject of arithmetic.
6. The teaching procedures most likely to secure an economical, effective use of the time devoted to the teaching of arithmetic.

The aims of arithmetic. The aims of arithmetic can, for the sake of convenience of discussion, be divided into two classes, (1) those concerned with its computational function, (2) those concerned with its informational function.

1. *The aims according to the computational function.* There is no question as to the utility of the fundamental processes of arithmetic in the affairs of society. Investigations have shown that a surprisingly large amount of arithmetic is used in the activities of children in the first six grades both in and out of school. The number system itself must first be studied and mastered before it can be used in quantitative thinking. By common consent, one of the major aims of arithmetic in the elementary school is that by the end of the sixth grade the child should be able to

manipulate the four fundamental operations in integers, fractions, and decimals accurately and with reasonable speed. As he progresses through the school the pupil's power to apply these processes in new situations of importance in the lives of most people should steadily increase. He should learn the value of the consistent use of checks on all computations. He should learn how to apply the methods that have been devised for measuring the various quantitative aspects of the environment. He should learn to understand and interpret correctly simple graphic representations of the various kinds found in current literature.

2. *The aims according to the informational function.* "Outside of their vocations, almost the only mathematics used by men and women is applied arithmetic."[1] Applied arithmetic deals with the methods by which civilized man has attempted to bring regularity, order, and arrangement to the quantitative aspects of the environment. This is shown by the applications of the number system in the affairs of everyday life. The first-grade pupil who learns to locate a page in his reader by using the numbers printed at the foot of the page comes into contact at once with the idea of the systematic arrangement of the number system. He can learn to appreciate its simplicity in comparison with other systems. The child as he learns to use the clock to tell time should at the same time be given information concerning other methods of telling time that have been and are now being used by man. From similar illustrations in other fields he will learn to understand that our present methods of measurement are the result of long periods of development. The fact that in the different countries of the earth there are many different standard units of measurement, for example, of length, and the social significance

[1] Franklin Bobbitt, *How to Make a Curriculum* (Houghton Mifflin Co.).

of this condition is a topic that is a legitimate one for the arithmetic period.

In his reading of books, papers, and magazines, the pupil comes into contact with many statements involving quantitative concepts. As a result of the work in arithmetic the pupil should be able to comprehend and use intelligently and readily the language of arithmetic that is used in the affairs of daily life and in the reading done by the normal person. For this reason, in the teaching of such topics as the value of insurance, credit, budgets, accounts, and receipts, not only the computations involved in them, but also their social significance, value, and limitations should be stressed. Number functions in every activity of life. If the abstract functions of number involved in the processes are given undue emphasis and the social utility of arithmetic is ignored, the pupil will leave school blind as to its functions in home management, business, taxation, school expenditures, banking, investing, and the many other matters concerning which he should have precise, accurate information.

An appreciation for the worth of arithmetic can be developed in the pupil by showing him the uses of arithmetic in his affairs and in the activities of society and by providing opportunities for him to use arithmetic in situations as nearly like those in which it functions in life as is practicable. In the upper grades such discussions will consider the quantitative aspects of production, distribution, and consumption concerning which it is important that the average citizen have correct, adequate information in order that he may react intelligently to social and economic problems. For example, pupils in Grades V and VI can easily comprehend discussions of such topics as the items included in a statement of the cost of operating a grocery store, the methods by which society has made it possible to provide a free education for all, the comparison of our

modern system of exchange with that used in earlier times, and the items to be considered in buying food in quantity and in bulk. "Arithmetical activities and experiences of the applied type should be more abundant and diversified than at present; they should be particularly abundant on the later levels of one's general education." The result of these experiences should be the ability of an individual to do his thinking in regard to his "individual, family, civic, and other nonspecialized affairs in quantitative terms so far as this is needful for accuracy."

The course of study. An analysis of courses of study used in various parts of the country shows that there is wide disagreement as to when to begin to study arithmetic, when to introduce various processes, and when to complete them.

1. *When should arithmetic begin?* This question can be answered in terms of present practice which, according to Washburne,[2] varies from schools which begin formal arithmetic work in Grade I to schools which delay the subject until Grade III. In general the practice is to begin it in Grade II.

Various investigators have attempted to answer the question by determining experimentally the influence of the time of beginning the formal work in arithmetic upon the subsequent progress of pupils. An experiment, reported by Taylor,[3] showed that pupils who had had no formal arithmetic work in the first grade but regular instruction in the second grade, "were, all told, at an advantage at the end of the second year," when compared in achievement with pupils who had had arithmetic in both

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[2] C. W. Washburne, "When Should We Teach Arithmetic," *Elementary School Journal*, Vol. 18, May, 1928, pp. 659-665. An analysis of current practices.

[3] J. S. Taylor, "Omitting Arithmetic in the First Year," *Educational Administration and Supervision*, Vol. 2, Feb., 1916, pp. 87-93.

GRADES IN WHICH TOPICS IN ARITHMETIC ARE INTRODUCED AND COMPLETED IN 125 SCHOOL SYSTEMS

Topic	Grades in Which Topic Is Introduced								Grades in Which Topic Is Completed							
	I	II	III	IV	V	VI	VII	VIII	I	II	III	IV	V	VI	VII	VIII
Addition facts	70	52	3							36	47	24	4	1	2	2
Subtraction facts	45	76	4							25	50	30	4	1	2	2
Column addition (carrying)	1	49	74	1						3	45	38	12	6	2	4
Subtraction with borrowing		27	95	3						2	39	46	10	6	2	4
Multiplication facts	2	40	79	2							27	61	16	7	1	1
Division facts	2	29	85	8							22	64	18	8	1	
Simple multiplication		9	112	4							37	53	11	6	2	1
Short division		2	104	16	3						20	71	14	3	2	1
Compound multiplication		1	36	86	1							52	34	17	2	5
Long division			5	118	2							34	50	20	2	4
Meaning of fractions	13	35	27	32	17	1				1	7	16	51	27	7	2
Add. and sub. of fractions	1	1	4	43	73	2						1	57	40	11	4
Multiplication of fractions	1		1	17	103	3						1	45	50	10	4
Division of fractions	1		1	7	108	6							40	56	11	4
Add. and sub. of decimals		1	2	6	54	61						1	5	77	20	6
Multiplication of decimals			1	4	48	71							2	76	23	7
Division of decimals				3	42	77	2						1	74	22	12
Area of rectangles		1	4	19	33	51	9	4				5	4	30	25	40
Area of triangles	1			3	9	58	35	12					1	23	26	54
Case I percentage				1	3	83	35	1						18	51	38
Case II percentage					1	71	49	3						13	48	46
Graphs		2	4	5	7	23	43	27						6	11	70
Grouping[1]		1	5	18	31	25	19	6				2	2	22	10	49

[1] Definite conscious training in grouping; for example, if three grapefruit cost 35 cents, how much will twelve grapefruit cost?

Grades I and II. Brueckner [4] reports a marked decrease for second-grade pupils in the knowledge of addition and subtraction number combinations at the end of the summer vacation, the loss in subtraction being greater for all pupils and especially marked with pupils of inferior mentality. However, at the end of a two weeks' drill period in the fall the pupils were, on the average, practically at the level of the preceding June. Washburne,[5] as the result of an extensive study of three large groups of sixth-grade pupils in Illinois under well controlled conditions, showed that on all tests in all processes in whole numbers, fractions, and decimals, with the single exception of addition of integers, the pupils who began arithmetic in Grade I made higher scores than pupils who began arithmetic in Grades II and III, and pupils who began arithmetic in Grade II excelled those who began in Grade III. "The uniformity of the results, process by process, is striking and significant." Although there appears to be a conflict between the results of the investigations by Taylor and Washburne, both current practice and experimentation agree that arithmetic should begin in the primary grades.

2. *What is the current practice as to the placement of the various topics in the courses of study?* The two most extensive investigations concerned with the content of courses of study in arithmetic are those of Guiler [6] and Washburne,[7] the latter of which is here reported as representing the more recent practices as to grade placement of the various topics.

Wide variations in practice are evident in the table.

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[4] L. J. Brueckner, "Certain Arithmetic Abilities of Second-Grade Pupils," *Elementary School Journal*, Vol. 27, Feb., 1927, pp. 433-443.

[5] Washburne, *ibid.*

[6] Walter Scribner Guiler, "Curriculum Building in Arithmetic," *Educational Research Bulletin*, No. 3, Feb. 6, 1924, Bureau of Educational Research, Ohio State University, Columbus, Ohio, pp. 49-54.

[7] Washburne, *loc. cit.*

For example, some schools begin compound multiplication in Grade II, others delay it until Grade V. The following topical outline suggests the general tendency as to the placement of topics for each grade as revealed by a study of the data given in Washburne's study and a study of other courses of study not included in this investigation.

Topical Outline of Course of Study

Grade I

1. Provision of experiences involving grouping and counting objects, writing numbers, comparing objects, using calendars, the use of small coins, etc., for the purpose of giving the child correct ideas of number and clear number concepts and to create a desire to increase his knowledge of the number system and its applications.
2. No formal drill.

Grade II

1. The continuation and expansion of number experiences similar to those in Grade I.
2. The 100 addition facts.
3. The 100 subtraction facts.
4. The introduction of easier multiplication and division facts.
5. Reading and counting numbers to 1,000, emphasizing the precision, order, and arrangement of the number system.
6. The meaning and use of simple fractions.
7. Telling time and a knowledge of units of measuring time.
8. A knowledge of the meaning of the simple units for measuring height, weight, capacity, and value.

Grade III

1. The continued use of activities and experiences to insure that the child understands and appreciates the utility and significance of the number system.
2. Primary and higher decade addition facts and carrying in column addition.
3. All types of subtraction examples.
4. Simple multiplication, including carrying.

5. Short division, all types.
6. Compound multiplication is optional.
7. Easy concrete uses of fractions.
8. Measurements of height, weight, time, value, liquid and dry measures.

Grade IV

1. Activities to make concrete and meaningful the new topics in this grade and to extend the work of the first three grades.
2. All types of addition and subtraction of whole numbers.
3. Simple and compound multiplication.
4. Short and long division.
5. Easy Roman numerals.
6. All units of measurement of distance, weight, time, liquid and dry measure, temperature, and area of rectangles.
7. Further work to develop the meaning and uses of fractions.
8. Easy work in addition and subtraction of simple fractions.
9. Multiplication of easy fractions is optional.

Grade V

1. Applications of arithmetic in other subjects in the curriculum and in activities in daily life should be stressed.
2. Review of all processes in whole numbers.
3. All processes in fractions.
4. Review the measurements of the lower grades, and in addition the measurement of rectangular volumes.
5. Simple line and bar graphs, for pupil's records; reading of plans; drawing to scale.
6. Addition and subtraction of decimals (usually taught in Grade V but often delayed until Grade VI).
7. Multiplication and division of decimals by integers (usually taught in Grade V but often delayed until Grade VI).
8. Multiplication and division of decimals by decimals (optional and usually delayed until Grade VI).

Grade VI

1. Activities and experiences emphasizing the applications of whole numbers, fractions, decimals, and per cent in the activities of daily life, especially in simple business situations.
2. Careful review of the four operations in whole numbers, fractions, and decimals, adjusted to the needs of the individual pupils.

3. Completion of all types of work in decimals.
4. Four operations in compound denominate numbers, stressing only useful measures.
5. Measurements of all kinds, including the area of a triangle.
6. Development and simple applications of percentage, including discount, simple interest, and commission.
7. Business practices and forms, such as checks, notes, bills, and receipts.
8. Extended illustrations of the use of graphs.

3. *The time allotment.* A number of studies [8] of the time allotment for arithmetic and other subjects in the curriculum have been made. The data for various years as far as arithmetic is concerned are summarized in the table on page 21. At the foot of the table is given a suggested time allotment based on the general tendencies revealed in the table.

The practice of giving a rigid daily time allotment for any subject and then allowing no deviations from it cannot be justified. The tendency to provide for increased correlations of subjects and the desirability of making clear to pupils the applications of arithmetic whenever the opportunity arises makes it advisable to use a time schedule that provides for reasonable variations that in the opinion of the teacher are desirable. There is evidence [9] available that shows under present conditions there is little relation between the results secured and the amount of time

[8] F. C. Ayer, "Time Allotments in Elementary School Subjects," *Second Yearbook* of the Department of Superintendence, pp. 139-143. William C. Bagley and George C. Kyte, *Arithmetic*, The California Curriculum Study (Berkeley, California, University of California Printing Office, 1926), pp. 92-107. H. W. Holmes, "Time Distribution by Subjects and Grades in Representative Cities," *Fourteenth Yearbook* of the National Society for the Study of Education, Part I (Public School Publishing Co., Bloomington, Ill., 1915). Clifford Woody, "The Amount of Time Devoted to Recitation and Study," Bureau of Educational Reference and Research, University of Michigan, Bulletin No. 100, March, 1927.

[9] J. M. Rice, "Educational Research: A Test in Arithmetic," *Forum*, Vol. 34, Oct. and Dec., 1902, pp. 281-297. Reports of the

given to arithmetic. An analysis [10] of the distribution of time given by teachers to formal drill work, to problem work, and activities developed in daily lessons, shows that teachers in Grades IV to VI are spending approximately only 14 per cent of the time on the applications of arithmetic and 86 per cent on formal drill work in abstract processes. In discussing the question of time allotments with teachers, supervisors should arrange for the proper

NUMBER OF MINUTES PER WEEK ALLOTTED TO ARITHMETIC
(Summary of Five Investigations)

	1	2	3	4	5	6	Total
California (Kyte, 1924)..	86	129	205	230	226	222	1,098
Large Cities (Ayer, 1925)	64	143	193	206	211	211	1,028
Rural Michigan (Woody, 1927)	130	150	184	206	232	231	1,133
Holmes Study (1915) ...	93	149	203	231	223	226	1,125
New York (25 cities, 1924)	94	157	195	213	216	218	1,093
Suggested	90	150	200	225	225	225	1,105

distribution of time between the formal and the applied work in arithmetic. It seems reasonable that at least half of the time usually devoted to arithmetic should be given to the consideration of its various applications in problems and in the activities of daily life.

Selection and gradation of the content. 1. *The heritage of number.* A study of the history of number

results of testing 6,000 children in arithmetic. Shows wide variation in results from school to school and low correlation between results secured and amount of time devoted to instruction. *See also* Washburne, *loc. cit.*

[10] H. A. Steel, Master's Thesis, College of Education, University of Minnesota, *Time Analysis of the Teaching of Arithmetic* (Unpublished).

shows that the system is a relatively recent invention of the human race. It is distinctive in that it deals with the quantitative aspects of things rather than with positive or active forces or energies that must be studied and understood in order that they can be controlled. Number has provided us with a way of systematizing and making precise the information which to an uncivilized or illiterate man is vague and indefinite. Civilized man is continually devising new ways, some of them extremely complex and theoretical, of considering the quantitative aspects of his environment. He has devised methods of measuring quantity, time, weight, distance, area, volume, and value. Many of these methods are now obsolete. The whole method of thinking that is based on number[11] "could not be perfected until a system of symbols was invented which could express adequately the ideas of precision and regularity." It is one of the functions of the school to make the pupil familiar with the social significance of the number heritage in its various aspects. We may consider as useful a thing as a coin merely as an abstract tool without considering the "vast network of social relations" upon which its usefulness is based. Unfortunately this aspect of arithmetic is practically ignored in the present-day studies that are being made to determine the content of the curriculum. In a real sense, arithmetic is a social study of great importance. One of the main reasons for the difficulty pupils have with this subject is that it has been dealt with in too abstract a way, stressing the logical structure of the system and neglecting almost wholly the many opportunities to enrich the subject through a consideration of its social applications. A very fascinating chapter in history is the story of the development of the

[11] C. H. Judd, "The Fallacy of Treating School Subjects as Tool Subjects," *Third Yearbook* of the National Council of Teachers of Mathematics, 1928, pp. 1-11.

number system and its significance in the story of human progress.

2. *Determining the socially useful processes.* Many investigations have been made to determine the socially useful processes in arithmetic, the assumption being that once determined in a reliable way the content of the curriculum could be determined on a reasonable objective basis.

(*a*) Child needs. Smith [12] made a study to determine the needs of arithmetic by pupils in the first grade by finding the activities in which they used number. She discovered a very large number of ways in which they utilized arithmetic, thus justifying the teaching of arithmetic in the lower grades. Miss Smith's investigation should be carried out on a much larger scale in order to secure data of greater significance. Kelty [13] made a study of the comprehension of time expressions by children in the school and revealed many erroneous concepts, showing that the work in the arithmetic and history periods had not functioned satisfactorily.

(*b*) Opinions of persons. Jessup,[14] Wilson, and others have secured the opinions of citizens, superintendents, and teachers as to what topics should be eliminated from the curriculum because of their lack of utility. On the basis of these and other findings such topics as cube root, com-

[12] Nila B. Smith, "An Investigation of the Uses of Arithmetic in the Out-of-School Life of First-Grade Children," *Elementary School Journal*, Vol. 24, April, 1924, pp. 621-626.

[13] Mary Kelty, "Time Expressions Comprehended by Children of the Elementary School," *Elementary School Journal*, Vol. 25, March and April, 1925, pp. 522-528, 607-618.

[14] Walter A. Jessup, "Current Practices and Standards in Arithmetic," etc., *Fourteenth Yearbook* of the National Society for the Study of Education, Part I (Public School Publishing Co., 1915), pp. 116-130. *See also* G. M. Wilson, *What Arithmetic Shall We Teach?* (Houghton Mifflin Co., 1926). An elaborate example of one method of making a curriculum. An extension of the author's original *Survey of the Social and Business Usage of Arithmetic*, which appeared in 1918.

pound proportion, longitude and time, partial payments, and many others have been eliminated by many schools. By means of a questionnaire, Camerer[15] attempted to determine the information that bankers thought every one ought to have concerning banking.

(*c*) Arithmetic needed in the home. Wilson,[16] Wise, and others have made studies in which they collected the *problems* in arithmetic that were solved in the everyday activities of the home. Wilson found that 85 per cent of a total of 14,583 problems contributed by 4,068 different persons in 155 different occupations involved the use of money in either the buying or selling of goods. Labor and wages, interest, rent, and insurance included two-thirds of the remainder of the problems. Most of the work was very simple, usually involving whole numbers and simple fractions. Many topics found in most courses of study and textbooks did not appear at all. Wise's findings were similar to those of Wilson.

(*d*) Arithmetic needed in vocations. Woody,[17] Mitchell,

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[15] Alice Camerer, "What Should Be the Minimal Information About Banking?" Third Report of the Committee on Economy of Time in Education, *Seventeenth Yearbook* of the National Society for the Study of Education, Part I (Public School Publishing Co., Bloomington, Ill., 1918), pp. 18-26.

[16] G. M. Wilson, "A Survey of the Social and Business Usage of Arithmetic," Teachers College Contribution to Education No. 100, Teachers College, Columbia University, New York, 1919. *See also* Carl T. Wise, "A Survey of Arithmetical Problems Arising in Various Occupations," *Elementary School Journal*, Vol. 22, Oct., 1919, pp. 118-136.

[17] Clifford Woody, "Types of Arithmetic Needed in Certain Types of Salesmanship," *Elementary School Journal*, Vol. 22, March, 1922, pp. 505-520. Edwin H. Mitchell, "Some Social Demands on the Course of Study in Arithmetic," Third Report of the Committee on Economy of Time in Education, *Seventeenth Yearbook* of the National Society for the Study of Education, Part I (Public School Publishing Co., Bloomington, Ill., 1918), pp. 7-17. E. Hansen, *The Arithmetic of Sales Persons' Tally Cards*, Department of Education, University of Iowa, 1924 (Unpublished study). W. W. Charters, *Curriculum Construction* (Houghton Mifflin Co.).

Hansen, Charters, and others have attempted to determine the arithmetic needed in various occupations. They have determined the arithmetic involved in sales slips, payrolls, catalogues, cookbooks, and elsewhere and their findings agree that the actual amount of computational arithmetic needed by people at the present time is relatively small and very simple in character, practically all computation in many business establishments being done by means of machines of various kinds.

(*e*) Arithmetic needed in reading newspapers and magazines. Adams [18] made an extensive investigation to determine the kinds of informational arithmetic the ordinary citizen needs to read magazines and newspapers intelligently. The results of this study showed that the range of information needed is much greater than has been revealed by previous investigations. Adams did not limit the material analyzed to computations that were needed to solve particular problems but included all references that related to quantitative aspects of present-day life. This approach to the problem of determining socially useful processes is a most suggestive one, and the limitations of previous studies that stressed the "tool" or computational aspect of arithmetic and neglected various social implications and applications of arithmetic are clearly revealed.

(*f*) Arithmetic of the consumer. An important line of investigation is the study of Harap [19] in which he has assembled from various sources the type of information, much of it of a quantitative character, that the average citizen needs in order to have an intelligent appreciation

[18] H. W. Adams, *The Mathematics Encountered in General Reading of Newspapers and Periodicals*, Master's Thesis, Department of Education, University of Chicago (Unpublished). Reviewed in *Elementary School Journal*, Vol. 25, Oct., 1924, pp. 139-143.

[19] Henry Harap, "Mathematics for the Consumer," *Educational Review*, Vol. 74, Oct., 1927, pp. 162-167.

of many of the problems that face him as a consumer and producer. Facts with which the owner or renter of a home, the investor, the purchaser of clothing, food, and other materials should be familiar are presented by Harap. McMurry [20] believes that many of the difficulties faced by the subject of arithmetic can be removed by making it the vehicle by which the pupils in our schools can gain an intelligent understanding of the important quantitative aspects of the social, economic, industrial, and political phases of their environment. Increased use is being made of material of this type in the newer textbooks in arithmetic.

(*g*) Present tendencies. While many of the curriculum investigations in the past have been concerned with the "tool" or computational aspects of arithmetic, there is a definite tendency to attempt to determine the quantitative information the ordinary citizen needs to be able to participate intelligently in the many activities in life in which number can be made to or does function in a definite way. Studies should also be made to determine the situations in which individuals have difficulty because of the lack of correct information as to various aspects of a quantitative kind. The results of such investigations would supply the curriculum maker with most valuable and useful material.

Definite attempts are being made to adjust the work in arithmetic to the needs, interests, and mental maturity of the child. "Instead of leading the child blindly through year of meaningless abstract problems, we have come to follow the child's interests and needs in selecting problems relating to the home, the school, and the community." The problem faced by the curriculum maker is how to proceed

[20] Frank M. McMurry, "The Question That Arithmetic Is Facing and Its Answer," *Teachers College Record*, Vol. 27, June, 1926, pp. 873-881.

to determine the most satisfactory materials to achieve this end.

As has been indicated, the application of the doctrine of social utility has resulted in the elimination of many obsolete, difficult topics that were previously in the courses of study and in the setting up of "common" or "minimum" essentials required of all pupils. The elimination of such topics as long involved complex fractions, cube root, and long examples in the various processes has greatly simplified the work in arithmetic. An excellent summary [21] of scientific studies showing the degree of difficulty in processes in computational arithmetic is as follows:

Degree of difficulty of addition problems. The typical addition example for the adult is the addition resulting from the purchase of two or three items at a grocery store. The amount for each item is usually less than one dollar. Therefore, we note for thorough drill with high speed and accuracy one-, two-, and three-place examples, with two, three, four, and even five addends; for occasional drill and without speed requirements, there should be attention to larger examples—four-, five-, and occasionally six-place numbers, with addends running up to eight, ten, or occasionally as many as twenty; for informational attention no particular limit, but without any attempt at drill as such.

Degree of difficulty of subtraction problems. Research findings suggest thorough drill on subtraction of one-, two-, three-, and four-place numbers with major emphasis upon two-and three-place numbers; occasional drill upon five- and six-place numbers; the informational usage for subtraction is relatively small.

Degree of difficulty of multiplication problems. Research findings suggest thorough drill on examples with one- and two-place multipliers; occasional drill with three- and even four-place multipliers; no limit to informational or reading knowledge, involving multiplication. In drill work the multiplicand should seldom exceed three or four places.

Degree of difficulty of division problems. Ninety-five per cent of all division is covered by one-, two-, and three-place divisors.

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21 *Fourth Yearbook* of the Department of Superintendence, Feb., 1926. Excellent chapter on arithmetic.

Thorough drill on the same; occasional drill, very occasional, with four-place divisors; informational attention as needed in actual situations.

Degree of difficulty of fractions. Confine thorough drill work to halves, thirds, fourths, fifths, sixths, eighths, tenths, and twelfths; occasional attention to sixteenths, twenty-fourths, or any fraction involved in actual situations. No limit on size of fractions in informational usage, but understanding for reading is all that is required.

United States money and decimals. Little attention should be paid to decimals as such; buying and selling should be involved in fundamental processes from the beginning; hence, United States money should be constantly used from the beginning. Attention to reading knowledge of decimals is suggested.

What shall be taught relative to denominate numbers? Tables as such are unnecessary. No reductions, either ascending or descending, occur in business situations. Addition, subtraction, multiplication, or division of compound numbers are not needed. Secure thorough understanding of common units and measures, such as inch, foot, yard, ounce, pound, dozen, quart, mile. Occasional attention could be given to gross, rod, acre, etc.

Degree of difficulty of per cents and percentage. There should be broad reading knowledge and general understanding of per cent as it occurs in mark-down sales and general reading. The actual study of business situations will call for division of expenses, profits, loans, discounts, etc., and thus is introduced the opportunity for drill work on simple percentage and interest.

Increased attention is being given to helping the pupil to see the applications of arithmetic in the different subjects in the curriculum. The traditional divisions between topics and subjects are being broken down. As Judd[22] points out, the teacher should show the child how number has enabled us to systematize the facts concerning the many aspects of life about us. The consideration of the social applications of number, both of the past and of the present, will give the child an appreciation of the methods by

[22] C. H. Judd, *Psychological Analysis of the Fundamentals of Arithmetic*, Supplementary Educational Monograph No. 32, Department of Education, University of Chicago, 1927.

which the human race evolved the present number system, its efficiency when contrasted with earlier methods, and its place in the present affairs of man.

3. *Analysis of processes in arithmetic.* (*a*) The interdependence of processes. The conventional order in which the processes in arithmetic are taught is first counting, then whole numbers, common fractions, decimal fractions, and per cent. The order is that in which the processes were developed by the human race. However, there is no reason why simple processes in decimal fractions could not be taught before the processes in common fractions, a practice now being followed by some schools. The particular grade in which each process is now taught is determined by the result of past practices which may or may not be correct. It is conceivable that a regrading of many topics may be necessary. However, the sequence of topics in each process is determined largely by the logical organization of the system itself. Addition of integers must precede multiplication; addition, subtraction, and multiplication must precede long division. The processes of addition and subtraction are less complex than multiplication and division, and therefore should precede them. The latter are, as a matter of fact, short cut methods of applying the former.

(*b*) The basic skills in processes. Studies have revealed great differences in the difficulty of number combinations, either as measured by the learning difficulty [23] or by the amount of errors made on tests in the knowledge of answers to combinations.[24] A basis for determining the sequence of

[23] F. B. Knight and M. S. Behrens, *The Learning Difficulty of the One Hundred Addition Combinations and the One Hundred Subtraction Combinations* (Longmans, Green & Co., 1928).

[24] Frank L. Clapp, "The Number Combinations: Their Relative Difficulty and the Frequency of Their Appearance in Textbooks," Bureau of Educational Research Bulletin No. 1, University of Wisconsin, Madison, Wis., 1924, p. 20.

teaching these number facts might therefore be their learning difficulty. Groups of combinations that are easy should be taught first and those more difficult left until a later time. However, there is considerable disagreement as to the difficulty of number combinations according to the studies of Clapp and Knight, and any final solution to the question of the order in which they should be taught must await further study of the problem.

Thorndike [25] and others have shown that much of the drill material in the earlier arithmetics did not take into consideration the relative difficulty of number combinations. In some cases the amount of practice provided varied almost inversely with the difficulty of the combinations. This weakness is being avoided in modern texts which in most cases provide practice materials in which scrupulous attention has been given to the necessity of providing more practice on the combinations commonly thought to be most difficult than on the easy ones.

An analysis [26] of the various skills involved in such a process as addition of whole numbers reveals a larger number than is commonly presented or provided for in the development of that process.

Knowledge Required for Addition

1. The 100 addition combinations.
2. Ability to apply the combinations to higher decades:

2	52
4	4

3. The meaning of the addition sign.
4. The meaning of the following terms: *addition, sum, add, addend,* and *carrying.*

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[25] Edward L. Thorndike, "The Psychology of Drill in Arithmetic. The Amount of Practice," *Journal of Educational Psychology,* Vol. 12, April, 1921, pp. 193-194.

[26] Elda L. Merton, "Remedial Work in Arithmetic," *Second Yearbook* of the Department of Elementary School Principals, pp. 395-411.

5. That in writing the example, units must be placed under units, tens under tens, etc.
6. That one must begin at the right and work to the left.
7. That unit figures should be added to unit figures in a column, tens to tens, etc. This also includes the ability to keep one's place in a column.
8. Ability to add a seen to a thought-of number.

$$\begin{array}{r} 47 \\ 56 \\ 93 \\ \hline \end{array}$$

After a child has added 3 and 6, he no longer sees both of the numbers he is required to add. Now 7 is a seen number, but 9 is only a thought-of number. This also includes the ability to keep in mind the result of each addition until the next number is added to it.

9. How to regard zeros in a column.
10. How to regard empty spaces in a column.
11. How to place the answer in the sum when a column has been added and the total sum of these figures is less than 10.
12. How to proceed with the next column when meeting the condition in (11).
13. How to place the answer in the sum when a column has been added and the total sum of these figures is 10 or more than 10.
14. How to proceed with the next column when meeting the condition in (13). (Carrying.)
15. Ability to remember the number carried.
16. How to proceed when the need for carrying and no carrying is met alternately in an example.
17. How to place all the numbers in the sum.
18. How to check for correct answers.

According to Osburn,[27] the facts to be learned are classified as follows:

Group 1. The 100 facts in simple addition.
Group 2. The 225 addition facts which are prerequisite for the most important column addition.

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[27] W. J. Osburn, "Improvement in the Fundamentals of Arithmetic," Madison, Wis., State Department of Public Instruction, 1923 (Mimeographed), p. 12. Lists the 1,328 most common combinations in the four fundamental operations.

Group 3. The 175 addition facts which are prerequisite for carrying in multiplication.
Group 4. The 100 facts in simple subtraction.
Group 5. The 175 subtraction facts which are prerequisite for short division.
Group 6. The 100 facts in simple multiplication.
Group 7. The 90 facts in division without remainders.
Group 8. The 360 facts in division with remainders.
Group 9. The character of practice in long division.

Similar analyses of the other processes in whole numbers reveal large numbers of skills which must be developed before a process is adequately taught.

The analysis of the processes in fractions likewise lends itself very readily to a listing of the skills involved. Knight [28] has suggested a technique for analyzing skills in division of fractions, listing in all fifty-five different elements. Brueckner [29] has suggested a technique for analyzing practice in subtraction of fractions according to types of examples involved. Types are defined as consisting of varying combinations of skills involved in securing the answers to examples, the thought being that a single skill involved in one complexity of skills might be much easier or much more difficult in another example involving a different combination of skills. Consider, for example, the following types:

Types	*Analysis of Types*
(*a*) $\frac{2}{3} - \frac{1}{3} = \frac{1}{3}$	Subtraction of like fractions; remainder a proper fraction; no reduction.
(*b*) $\frac{7}{8} - \frac{3}{8} = \frac{4}{8} = \frac{1}{2}$	Subtraction of like fractions; remainder a proper fraction; reduction.

[28] *Third Yearbook* of the Department of Superintendence, Feb., 1925. Excellent chapter on arithmetic.

[29] L. J. Brueckner, "A Technique for Analyzing the Distribution of Drill in Fractions," *Journal of Educational Method*, Vol. 7, May, 1928, pp. 352-358.

(*c*) $5\frac{1}{4} - 3 = 2\frac{1}{4}$	Subtraction of whole number from a mixed number; remainder a mixed number; no reduction.
(*d*) $1\frac{1}{10} - \frac{4}{5} = \frac{3}{10}$	Subtraction of a fraction from a mixed number; unlike fractions; answer a proper fraction; no reduction in answer.
(*e*) $\frac{1}{2} - \quad = \frac{1}{6}$, or $\frac{1}{4} - \frac{1}{6} = \frac{1}{12}$	Subtraction of unlike fractions; neither of which is a common denominator; answer a proper fraction; no reduction.

Mere listing of skills may not be an adequate basis of analysis. Data were presented by Brueckner showing that many modern textbooks which make careful analyses of the various steps in the solution of examples in integers do not give adequate consideration to the analysis of skills or types of examples in work in fractions, as can be seen from the table below:

FREQUENCY OF OCCURRENCE OF FIFTY-EIGHT TYPES OF SUBTRACTION EXAMPLES IN TEN TEXTS FOR GRADE V

Text	Frequencies														
	0	1	3	5	10	15	20	30	40	50	60	70	80	90	
I.....	39	9	2	1	3	2		1						1	
II.....	27	9	9	5	3	2	2	1							
III.....	28	6	9	6	2	2	3								
IV.....	40	6	4	6		2									
V.....	16	18	10	8	1	3	2								
VI.....	32	12	3	7	2		1	1							
VII.....	26	16	3	4	4	2	2	1							
VIII.....	35	5	2	2	4	4	1								
IX.....	46	2	4	3	1	1		1							
X.....	31	13	3	3	2	4	1			1					

For example, in Text I, 39 of the 58 types of examples in subtraction of fractions do not occur at all. 9 types occur 1 or 2 times, while type I occurs more than 90 times. Similar data are given for all ten texts that were checked. Detailed analyses of the various types of examples in decimals and per cent can easily be made and must be used as the basis of an adequate gradation and sequence in the development of these processes. Unless this is done there are almost certain to be many deficiencies in the development.

ANALYSES OF TYPES OF EXAMPLES IN SUBTRACTION AND MULTIPLICATION OF DECIMALS [30]

Subtraction

Can you work these examples in subtraction correctly?

1.	.8 .3	2.	.5 .5	3.	.16 .04	4.	.38 .15	5.	.43 .41
6.	.375 .269	7.	.7 .35	8.	.9 .275	9.	.4 .375	10.	.6 .004
11.	9.6 3.4	12.	18.5 4.6	13.	27.08 15.17	14.	9.3 6.25	15.	18.2 1.625

16. Subtract 3.825 from 20
17. Subtract .5 from .75

Work 16 here

Work 17 here

[30] Diagnostic tests of this type for all processes are included in *Triangle Arithmetics* (John C. Winston Co.). Also in Brueckner, Anderson, Banting, and Merton, *Diagnostic Tests and Remedial Exercises* (John C. Winston Co., 1929), Grades III-VIII.

Multiplication

Can you work these examples in multiplication correctly

1. $4 \times .2 =$	2. $4 \times .02 =$	3. $4 \times .002 =$
4. $5 \times .3 =$	5. $6 \times .04 =$	6. $7 \times .008 =$
7. $8 \times .5 =$	8. $6 \times .05 =$	9. $4 \times .005 =$

10. 2.6	11. 3.5	12. 3.28	13. 4.647
4	8	4	5
14. 85	15. 20	16. 32	17. 2.5
.4	.6	1.4	48

18. $.4 \times .2 =$ 19. $.5 \times .03 =$ 20. $.8 \times .25 =$

21. 7.8	22. 6.5	23. 18.4	24. 8.04
6.4	4.8	.26	.03

25. $10 \times 8.5 =$	26. $10 \times .96 =$	27. $100 \times .14 =$
28. $100 \times 8.5 =$	29. $100 \times 8.65 =$	30. $200 \times 9.4 =$
31. $\frac{3}{8}$ of $6.4 =$	32. $.08 \times 25 \times \frac{1}{2} =$	

4. *Application of processes in problems and activities.* (*a*) Problems graded according to steps in solving them. Problems may be classified, according to the number of computations necessary to arrive at their solution, as one-step, two-step, or three-step, or more. Those persons who stress this method of classification are concerned with the mental processes involved in selecting the method of solving the problem, often to the neglect of its content. Usually the work in problem solving in Grades II, III, and most of IV is limited to work with one-step problems. Two-step problems are usually introduced in Grade IV and are the major work for Grades V and VI. Problems of more than two steps are formally introduced in Grades VI to VIII. The writer has found by trial that pupils in Grades III

and IV have no difficulty in solving two-step problems when the numbers involved are small and the situation is in the experience of the child. Stress on the question of the structure of problems according to steps often results in the construction of problems that are unreal and highly artificial. There are four types of one-step problems, sixteen types of two-step problems, and sixty-four types of three-step problems.

(*b*) Sources of problems and activities. All textbooks in arithmetic supply large numbers of verbal *problems* applying the processes that are developed in the texts. These problems are presented in various ways:

1. Some sets consist of isolated problems unrelated to each other. Often all problems in such a group illustrate a single process.
2. Some sets are about a single topic, such as problems about a farm, historical questions, geography, and the like.
3. Some problem units deal with the elements in a single situation, as the cost of a party, the cost of owning a bicycle, and the like.
4. The more recent textbooks contain many suggestions of how arithmetic can be applied in the activities of the school, home, and community without listing all of the problems that may arise, thereby giving the pupil an opportunity to apply arithmetic in real situations so that he may see how the work in school functions in life.
5. Modern textbooks in arithmetic contain many suggested problem exercises to be used by the teacher to aid in the diagnosis of the causes of difficulty in problem solving and to carry on the remedial work needed to overcome the weaknesses revealed by the diagnostic tests.

The best courses of study suggest the desirability of the use of the many situations that arise in the school as a means of teaching the child to apply arithmetic. The value of such work is obvious. Occasions arise naturally in music, history, geography, nature study, health work, and other subjects which can be made richer and more meaningful by

a consideration of their various quantitative aspects. The arithmetic involved may be merely informational and require no computation whatever.

Much of the information that children secure in reference books is of a quantitative nature. No teacher should assume that there is a magical transfer from the formal arithmetic work to its application in other subjects.

The following graded list of activities suggests the opportunities for applying arithmetic that arise frequently in almost every school.

Grade I

1. Counting and grouping objects
2. Distributing materials and supplies
3. Counting in games, keeping score, etc.
4. Use of money in buying and selling, going to the store, etc.
5. Bank day, paper sales, etc.
6. Weight chart
7. Locating pages in readers
8. Measuring height, textile material, liquids, etc.
9. Telling time
10. Street numbers, telephone numbers
11. The construction of number charts

Grade II

1. Construction of floor maps, sand tables, etc.
2. Making kites, boxes, and other toys
3. Drawing or measuring objects of given sizes
4. The uses of the calendar
5. Counting books, children, pages, objects, etc.
6. Doing errands at stores
7. School lunches, buying milk, school supplies, etc.
8. Making change, counting money
9. The uses of number in the table of contents, simple index, etc.
10. Playing store

Grade III

1. Sewing dresses, making costumes
2. Constructing rabbit coops, dog kennels, etc.
3. Measuring poles for tents, wigwams, etc.

4. School gardens
5. Telling time to the minute
6. Estimating distances, weights, time
7. Weight surveys, charts of growth, etc.
8. Mailing letters, postage
9. Cost of carfares, tickets, etc.
10. Addresses on letters

Grade IV

1. The cost of school supplies, school furniture, etc.
2. The cost of automobile trips, picnics, etc.
3. The thermometer, weather records
4. Collection of money for milk fund
5. Measuring dimensions of schoolroom, playground, etc.
6. Reading an automobile road map
7. Problems about the distribution of time in the program of classes
8. Finding instances of the uses of larger numbers in books and newspapers
9. Marking papers; measuring rate of reading
10. Building a bird house

Grade V

1. Accounts, personal and cash
2. Filling Thanksgiving baskets
3. Computations related to the school bank
4. Discussions on the uses of arithmetic by the grocer, the farmer, parents, and others
5. Equipping the school playground with play apparatus
6. Discussions on the uses of arithmetic in geography, history, art, music, etc.
7. Selling vegetables raised in school gardens
8. Ways of earning money, wages, newspaper routes, etc.
9. Expenses of the home, the cost of clothing, its durability, etc.
10. Reading house plans, constructing toys according to specifications, etc.

Grade VI

1. Reading the speedometer
2. Uses of time-tables

3. Cost of a cantata, exhibit, or entertainment
4. Graphing of test scores, graphs in textbooks
5. Arithmetic in advertisements
6. Determination of the per cent overweight or underweight, health campaigns, etc.
7. Personal budgets, family budgets
8. Expenses connected with Farm Clubs, 4-H Clubs, Boy and Girl Scouts, Campfire Girls, etc.
9. Determining profits in school gardens
10. Collection of business forms of local firms
11. Construction of a puppet theater

Methods of teaching. The opportunities for applying arithmetic in activities and problems involving computation are obviously limited by the processes that the pupil has mastered. If the teacher limits the *problem* work to the applications of the processes that have been learned, the work of the arithmetic period is more meager than is desirable. It is therefore important that provision be made for the consideration of the informational aspects of arithmetic as a means of enriching the work. The need for number arises incidentally in the primary grades in the construction work, games, excursions, and other activities. It should arise from the work in other school subjects.

The teaching of the applications of arithmetic can be accomplished in socialized recitations, project work, excursions, or by any other method that is acceptable in the teaching of any subject, such as history, geography, or reading. Discussions on units of work, such as the following, can be made the basis of much valuable work in arithmetic, stressing the social, informational application of number:

1. How the grocer uses arithmetic
2. Why we have coins of various values
3. What the Indians used for money
4. The uses of arithmetic in geography, history, etc.
5. What we need to know in finding the cost of building a sidewalk

6. What it costs to own and operate an automobile
7. The variations in scales to which maps are drawn
8. The development of methods of measuring time
9. The arithmetic of banking, insurance, etc.
10. The uses and value of budgets
11. Measuring devices in the home
12. Changes in prices of foods during the year
13. Buying food in packages and bulk
14. Systems of street numbers
15. Cost of government
16. Cost of an education
17. Arithmetic in farm-club projects

Discussions such as those suggested by the topics above will greatly enrich the work in arithmetic, and will tend to make it less abstract. The applications of arithmetic in such exercises will make evident the need of much more adequate materials than are now found in the meager statements contained in most arithmetic textbooks. "In school life, mathematics should be primarily not a matter of solving difficult problems, but rather a matter of continuously viewing for many years the quantitative aspects of things, and of thinking in accurate terms."[31]

Modern educational theory stresses the importance of the participation of the pupil in worthwhile socializing activities which develop his initiative, his capacity for self-control, self-direction, and the ability to coöperate with other members of his group. Ideally the need for an arithmetic process should arise in some social situation. The practice needed to develop the necessary skill with the process would then be given in a special period set aside for that purpose. Usually this procedure is reversed, the process being taught first abstractly, then its applications being demonstrated.

The method of organizing the work in the practice or

[31] Franklin Bobbitt, *How to Make a Curriculum* (Houghton Mifflin Co.).

drill periods must take into account the following considerations if it is to be effective and economical:

(*a*) The basic concepts involved must first be established by concrete illustrations.

(*b*) The new process must be presented to the pupil one step at a time, no new step being added until the previous one has been fixed.

(*c*) The amount of practice needed on the processes will vary widely among the pupils. Therefore, materials adapted to individualizing instruction should be used.

(*d*) Reasonable speed of work and 100 per cent accuracy should be insisted upon in the initial practice periods in order that correct habits of work may be established from the beginning.

(*e*) The pupil should apply the new process in problems and other activities.

(*f*) After a process has been presented tests should be given to locate pupils who must be given additional help, because of faulty habits of work, lack of understanding of the process, and other difficulties.

(*g*) Provision must be made for the continuous review of processes that have been previously taught to offset possible loss of skill due to disuse.

The teaching of arithmetic is concerned with the systematic development of the power of the child to apply the number system and number processes in life situations. As has been indicated earlier in the discussion, the processes in arithmetic are very complex, forming almost a hierarchy of habits and skills depending one upon the other and being susceptible to a logical arrangement which practically determines the order in which the steps in each process must be taught.

1. *The necessity of an analysis of the steps in each process.* The primary consideration in the teaching of arithmetic is the necessity of a careful preliminary grading

of the steps in the presentation of a process so that the pupil encounters only one new step or difficulty at a time. For example, in addition to the practice on the combinations with and without remainders, the first twelve steps that should be presented in short division are as follows:

(1) $2\overline{)64}$
(2) $2\overline{)608}$ or $2\overline{)648}$
(3) $2\overline{)200}$
(4) $3\overline{)216}$
(5) $2\overline{)816}$
(6) $4\overline{)207}$
(7) $2\overline{)215}$
(8) $3\overline{)282}$ or $3\overline{)84}$
(9) $4\overline{)347}$
(10) $4\overline{)\$7.20}$
(11) $4\overline{)\$7.25}$
(12) $8\overline{)\$4.40}$

Each of these steps involves a new difficulty which must be clearly explained to the pupil. There are variations from the above types that should also be presented in the practice exercises.

Similar analyses must be made for each process in whole numbers, fractions, and decimals. Much of the difficulty pupils have with arithmetic would be eliminated if the steps in each process were developed more systematically in modern textbooks than is now apparent from the investigations that have been made. In the development special attention must also be given to the consideration of those phases of each process that present serious difficulties to pupils, such as naming quotient figures in long division, zero difficulties in long division and multiplication, reduction of fractions and mixed numbers, changing the form of fractions in subtraction, for example, $6\frac{1}{2} - 4\frac{3}{4}$, division of fractions and decimals, and multiplication of decimals. The elements that cause difficulty must be determined and then practice exercises must be developed which will give the pupils a carefully graded series of experiences resulting in a clear comprehension of the step involved. For example, in developing the ability to subtract $4\frac{3}{4}$ from $6\frac{1}{2}$, the element that causes most difficulty is changing $6\frac{1}{2}$ to

$5\frac{6}{4}$. The steps involved are made clear to the pupil by the following statement of the solution:

$$\begin{aligned} 6\tfrac{1}{2} &= 6\tfrac{2}{4} = 5\tfrac{6}{4} \\ -4\tfrac{3}{4} &= 4\tfrac{3}{4} = 4\tfrac{3}{4} \\ & \qquad\qquad 1\tfrac{3}{4} \end{aligned}$$

2. *Steps in the teaching of a process.* (*a*) Establishing the need of the new step. Each new step in a process should be presented in some situation in which it functions in life. These situations may be found in the activities of children. In many cases it may be necessary to resort to illustrations of applications of processes in the activities of adult life. The utility of the new step should first be established so that the work may be made meaningful to the child. Too often the pupil has been taught an abstract process without any attempt being made to show its applications.

(*b*) Presenting the new step. The teacher should next explain by means of carefully selected models the new process to be learned. Pupils should then practice working the examples presented by the teacher and compare their work with the models. This will assure the use of the correct steps in the procedure from the beginning. Next the pupil should practice on new examples of the step being learned, preferably with scientifically constructed practice materials. The use of the process in practical problems should follow.

(*c*) Testing to discover needs. After a preliminary practice period the teacher should give a test as a means of discovering pupils in need of special help. These tests may be standardized or informal, depending on the stage of progress of the group. Pupils can then be divided into groups according to their needs.

(*d*) Reteaching as needed. After the pupils have been grouped according to their needs the teacher should make a careful diagnosis of their difficulties and then reteach

whatever part of the development of the process she finds necessary. The needs of individuals usually vary widely, in some cases a few words of explanation being sufficient to clear up the difficulty, while in other cases there must be practically a new presentation of the process.

(*e*) Practicing for control of the process. The class should then practice the new step until the process has been mastered. Well organized textbooks will supply the necessary practice exercises. Standardized practice exercises containing survey tests, diagnostic tests, and remedial exercises have been prepared which provide carefully graded units of work suited to practice for mastery. The usual method of determining whether a pupil has sufficient skill with a process is to measure his speed and accuracy on standardized exercises, the speed required increasing as the child progresses from grade to grade.

(*f*) Provision for retention of previously acquired skills. As new steps in the several processes are presented, provision must be made for the retention of the previously taught skills through carefully constructed cumulative tests, diagnostic tests, and practice exercises.

Cumulative tests should contain selected types of examples from the various processes that have been taught as a means of securing a sampling of the previous work, and as a method of getting a general picture of the status of the class as a whole.

Diagnostic tests should be given at the end of each development or at the beginning of review work. Such tests should contain a complete analysis of the various elements in each process to enable the teacher to locate the precise steps that cause difficulty for the various pupils. These tests are much more comprehensive than the usual cumulative test or sampling exercise.

When the specific needs of pupils have been revealed practice exercises or remedial exercises are needed to enable

the pupils to relearn the steps involved in the types of examples with which they have difficulty.

3. *Standards* [32] *for Evaluating a Drill Lesson.* The following set of standards with suggestive items is proposed as a basis of evaluating drill lessons in arithmetic:

Provision for individualization

1. How are pupils grouped for drill work?
2. How many groups are there?
3. How is the drill work adapted to the needs of the individuals in the group?
4. How many pupils are making satisfactory progress?
5. How did the teacher discover the weaknesses of the deficient pupils?
6. How is the work of the pupils checked?
7. What is the character of the work being done by the pupils who are not drilling?
8. What provision is made for individual progress?
9. What are the standards of achievement set up by the teacher?
10. What evidences of overlearning were there?

Provision for vitalization

1. What was done to make the child feel the need of the drill?
2. What experiences of the pupils were utilized to make the need of the new step vital?
3. What comparison was made of pupils' achievements with desirable standards?
4. What help was given to pupils to aid them in diagnosing and overcoming their own weaknesses?
5. What types of graphs were used by pupils and teacher to indicate progress?
6. Was the preliminary preparation for the drill adequate?
7. What devices were used to measure the progress made?
8. In what ways were the material and the method adapted to the interests of the children?

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[32] For another valuable set of standards *see* A. S. Barr, *Elementary School Standards for the Improvement of Teaching* (Edwards Bros., Ann Arbor, Mich.).

9. What evidences were there that the efforts to improve arose from a voluntary choice on the part of the pupil?
10. How was drill possible in connection with the incidental number work of the class?

Provision for socialization

1. In what way did the lesson contribute to the social objectives of the school?
2. What opportunity was given to use arithmetic in social situations?
3. What provisions were made to give the child socializing experiences?
4. What opportunities for suggesting associated learnings were overlooked by the teacher?
5. What opportunity was given for training in self-direction?
6. What opportunity was given for self-appraisal and the evaluation of each individual's work by himself?
7. What evidences were there of persistence of purpose on the part of the child?
8. What attempts were made by the teacher to point out interrelationships of arithmetic and other subjects?
9. What evidences were there of faulty learning situations, such as indifference, day dreaming, etc.?
10. What was the attitude of the teacher toward the class?

The nature of the practice exercises as a whole

1. The number of new skills involved in the exercise.
2. The previous skills taught.
3. The adequacy of the models of procedure.
4. The time standards.
5. Applications of the process.
6. Length of time given to the drill period.
7. Frequency of drill periods.
8. Adequacy of the practice for retention of previously acquired skills.
9. The specifications according to which the drill materials were constructed.

4. *Effective organization of drill in arithmetic.* (*a*) The effectiveness of drill. The results of experimental studies [33]

[33] Joseph C. Brown, "An Investigation on the Value of Drill Work in the Fundamental Operations of Arithmetic," *Journal of Educational Psychology*, Vol. 2, Feb. 1911, pp. 81-88; Vol. 3, Nov.

of the effectiveness of practice are in unanimous agreement in reporting beneficial results of systematic drill. The enthusiasm for drill often results in its overuse and a large amount of overlearning. It is therefore desirable that certain standards of achievement for each grade be set up and that the use of drill to secure results in excess of the standard should be considered as a waste of effort.

(*b*) Standardized drill materials as teaching instruments adapted to individualizing instruction. Under conventional teaching procedures, uniform training is given to the class as a whole. This practice violates the findings of modern psychology which have revealed the wide differences in the rates of progress for individuals in the various arithmetic processes. To provide for the adaptation of the drill work to the needs of individuals well graded, scientifically constructed practice materials have been prepared which make it possible for pupils to progress at their own rates as rapidly as they are able to meet reasonable speed standards for the grade. The standards for accuracy are uniformly 100 per cent on these practice exercises, although the authors suggest that teachers may modify the standards for both speed and accuracy according to the ability of the group to achieve them. Most of the earlier practice exercises assumed that the pupils had already been taught the processes included in the drills. The newer standardized practice exercises take into consideration the steps in the learning process and are much more carefully graded. The following are some of the standardized drill materials that have been found to yield excellent results:

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and Dec., 1912, pp. 485-492, 561-570. H. H. Hahn and E. L. Thorndike, "Some Results of Practice in Addition under School Conditions," *Journal of Educational Psychology*, Vol. 5, Feb., 1914, pp. 65-84. Reports the amount of improvement as a result of training. Thomas Joseph Kirby, "Practice in the Case of School Children," Teachers College Contribution to Education No. 58, Teachers College, Columbia University, 1913.

Whole Numbers Only

Brueckner Drills in Second and Third Grade Arithmetic (Educational Test Bureau, Minneapolis). A system of individualized units for the arithmetic in these grades.

Courtis Standard Practice Tests (World Book Co., Yonkers, N. Y.). Assumes previous knowledge of processes.

Studebaker Economy Practice Exercises in Arithmetic (Scott, Foresman & Co.). Assumes previous knowledge of processes.

Green, Knight, Ruch, Studebaker Economy Remedial Exercise Cards (Scott, Foresman & Co.). Very well analyzed steps in the learning process.

Whole Numbers, Fractions, Decimals, and Per Cent

Brueckner, Anderson, Banting, and Merton Diagnostic Tests and Remedial Exercises in Arithmetic (John C. Winston Co.). Grades III, IV, V, VI, VII, VIII. A complete analysis of steps in the learning of all processes and systematic drill exercises, cumulative and diagnostic tests.

McMurry-Benson Arithmetic Work Books (Macmillan Co.). Well organized drill material but lacking cumulative or diagnostic tests.

(*c*) The distribution of time given to drill. The experimental evidence in the effective distribution of time given to drill in arithmetic is confusing. Kirby [34] found that distributing forty-five minutes of practice in periods of 22½, 15, 6, and 2 minutes resulted in gains in the relation of 100, 121, 101, and 146½ respectively. The two-minute practice period produced by far the best results. In a similar experiment Hahn and Thorndike [35] divided ninety minutes of practice in addition into periods of 5, 7½, 10, 11¼, 15, 20, and 22½ minutes. The conclusions from this

[34] Thomas Joseph Kirby, "Practice in the Case of School Children," Teachers College Contribution to Education No. 58, Teachers College, Columbia University, 1913.

[35] H. H. Hahn and E. L. Thorndike, "Some Results of Practice in Addition under School Conditions," *Journal of Educational Psychology*, Vol. 5, Feb., 1914, pp. 65-84. Reports the amount of improvement as a result of training.

experiment favor long periods of practice rather than short periods. Other experimental data are available which lead to varying conclusions. Buswell and Judd [36] sum up the evidence in the following statement:

> Where the evidence is as confusing as in the present case the teacher will probably have to rely on common sense in the distribution of practice periods. Certain general principles, however, would seem to apply. For example, the practice periods should be sufficiently frequent so that the habit begun in one period does not die out before the second period of practice begins. Again, the element of fatigue doubtless serves to reduce the efficiency of the longer practice periods. However, the existing evidence does not justify the statement of a single rule covering the length and distribution of the practice periods.

(*d*) The effect of vacation periods or lapses of drill. Brueckner,[37] Kirby,[38] Haskell,[39] and others present evidence that shows conclusively that there is a marked decrease in the ability of pupils in arithmetic computation as a result of the lapse of time due to the summer vacation. This suggests the necessity of a careful inventory of the arithmetic processes at the beginning of school in the fall by means of survey and diagnostic tests to determine the needs of the individuals in the class. The review work

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[36] Buswell and Judd, "Summary of Investigations Relating to Arithmetic," Supplementary Educational Monograph No. 27, University of Chicago, 1925. Summary of investigations prior to 1925.

[37] L. J. Brueckner, "Certain Arithmetic Abilities of Second-Grade Pupils," *Elementary School Journal*, Vol. 27, Feb., 1927, pp. 433-443. An investigation of the effectiveness of the teaching of arithmetic in Grades IIA and IIB.

[38] Kirby, *ibid.*

[39] Charles Otto Haskell, *The Influence of Vacations on Retention of Ability in the Four Fundamental Operations of Arithmetic as Measured by the Courtis Arithmetic Tests, Series B*, Master's Thesis (Unpublished), Department of Education, University of Chicago, 1920, p. 206. Study by means of arithmetic tests of the effects on pupils of long and short vacations. Shows loss in speed and accuracy in fundamental operations due to vacations and shows also length of periods of recovery.

should be adapted to the needs of each pupil by means of materials constructed in such a way that the pupil can work to overcome his own difficulties. Uniform mass instruction is wasteful and uneconomical. The experimental data show that a relatively short period of well organized drill in the fall will result in a marked improvement in a short period of time, although a fairly long period of practice will be required to bring the pupils up to the level of the preceding June. Incidentally scores on tests given in June are not a reliable index of the abilities of the pupils in September. New tests must be given and instruction adjusted according to the results secured.

(*e*) Drill to maintain acquired skills. The psychological law of the effect of disuse operates to a marked degree in arithmetic. Apparently a process once acquired must be practiced at intervals if it is to be maintained at a satisfactory level. Thorndike [40] says, "Each ability has its peculiar needs in this matter, and no set rules are at present of much value." The teacher of arithmetic must use cumulative tests and exercises as a means of insuring practice on acquired skills. The items of weekly tests should be carefully selected from detailed lists of specific skills or types of examples previously taught, care being taken to cover as wide a range of skills as can conveniently be included in one exercise. In succeeding weeks all skills should be included in the tests. Knight [41] has suggested the following set of specifications for preparing systematic drills for maintaining skills. These specifications do not apply to the content of drill when a new process is being developed for the first time.

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[40] Edward L. Thorndike, *The Psychology of Arithmetic* (Macmillan Co., 1922). A general discussion of the psychology of arithmetic.

[41] *Third Yearbook* of the Department of Superintendence, Feb., 1925. Excellent chapter on arithmetic.

1. Drill should be on the entire process.
2. Drill should come frequently in small amounts.
3. Each drill unit should be a mixed drill.
4. Drills should have time limits.
5. Drills should have accuracy standards.
6. Examples in a drill unit should be in the order of difficulty.
7. Drill units should include verbal problems.
8. Drills should facilitate diagnosis.

Units of standardized materials prepared with these specifications in mind serve admirably as inventory tests of the range of skills they contain. However, they must be supplemented with practice exercises dealing with skills in the processes not included in them. The teacher, for example, in Grade VI, who is faced with the problem of providing adequate drill to maintain the large number of skills previously taught must prepare additional daily practice units containing carefully selected varieties of skills. The arithmetic difficulties that are revealed must be made the basis of much of the individualized or group drill work. Modern textbooks in arithmetic make provision for both diagnostic and cumulative tests as well as practice exercises to supplement these materials.

5. *Diagnosis of pupil difficulty in arithmetic processes.* For various obvious reasons, such as transfer from school to school, excessive absence due to illness, lack of native capacity and physical handicaps many pupils fail to make satisfactory progress in arithmetic. Several methods of analyzing the less obvious causes of failure have been developed in recent years.

(*a*) The fact of individual differences. The use of modern educational tests has revealed wide differences in the ability of children in arithmetic, variations in their rates of progress, and variations in the results secured in schools in the same community. Special studies of the characteristics of pupils markedly deficient in arithmetic show that

they vary widely in mental capacity, one study [42] reporting a range in I. Q.'s of from 135 to 75. Their parents represent all types of occupational groups, and all economic and social levels.

(*b*) Analytical procedures in diagnosis. (1) By means of standardized diagnostic tests it is possible for the teacher to locate the pupils who are having difficulty in each phase of arithmetic. Some of the diagnostic tests that have been published assume that the ability of the pupils to work a relatively few types of examples in a particular process with a given speed and accuracy is a satisfactory index of ability to work all other types of examples in that process. The investigations of the writer have convinced him that this is not a valid assumption, especially in grades in which the steps in process are being presented. For this reason he has prepared a complete series of diagnostic tests [43] in all processes in which the ability of the pupils to work a large variety of types of examples in a particular process is determined. Buswell and John [44] used a test constructed from the same point of view in their study of the diagnosis of pupil difficulties in whole numbers. An analysis of the work of the pupils reveals the types of examples that are causing difficulty for the pupils. A carefully constructed series of practice exercises makes it

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[42] A. Souba, *Diagnosis of Pupil Difficulties in Arithmetic*, 1923, Master's Thesis (Unpublished), College of Education, University of Minnesota. One of the original studies in specific diagnosis.

[43] L. J. Brueckner, "Analysis of Difficulties in Decimals," *Elementary School Journal*, Vol. 28, Sept., 1928, pp. 31-41. Analysis of types of examples in decimals and a detailed list of causes of errors.

[44] G. T. Buswell, with the coöperation of Lenore John, *Diagnostic Studies in Arithmetic*, Supplementary Educational Monograph No. 30, Department of Education, University of Chicago, 1926. Reports (1) a laboratory analysis of mental processes involved in column addition, (2) a study of the time required for various operations in the four fundamentals, and (3) a classroom experiment involving diagnosis of pupils' habits of work. Used 584 subjects.

possible for the teacher to assign the work that will help to eliminate the difficulty.

The Compass Diagnostic Tests represent an attempt to determine the elements in each process in which the pupils are deficient. They do not stress the concept of types of examples as has been done by Brueckner and Buswell and John. For example, to locate the source of difficulty in column addition, and to test the pupil's ability in each element, tests in the following are given to the pupil:

1. Knowledge of addition combinations
2. Knowledge of selected combinations in decade addition
3. Ability to add a column of numbers
4. Ability to carry the correct number
5. Ability to add broken columns

The Wisconsin Inventory Test gives data concerning the knowledge pupils have of the number combinations in each of the four processes in whole numbers.

(2) Many studies have been made to determine the types of errors found in work in arithmetic. The commonest procedure has been to give a test, either standardized or unstandardized, and then to analyze the errors made on the test. The most complete analysis of errors in processes in whole numbers is that of Buswell and John [45] contained in their monograph. They analyzed not only errors in computation, but attempted also to ascertain the mental processes of pupils that resulted in errors. The results of their analysis of faulty habits found in working addition examples are given in the table on the following page.

Similar analyses of difficulties in the other fundamental processes are given in their monograph. Case studies containing detailed descriptions of the difficulties of individuals, techniques for diagnosis, and remedial exercises are also included. This investigation is the most comprehen-

[45] *Ibid.*

FREQUENCY OF HABITS IN ADDITION (ALL CASES)

HABIT	GRADE				
	III	IV	V	VI	Total
a^1 Errors in combinations	81	103	78	58	320
a^2 Counting	61	83	54	17	215
a^3 Added carried number last	39	45	45	26	155
a^4 Forgot to add carried number	37	38	34	17	126
a^5 Retraced work after partly done	26	34	39	22	121
a^6 Added carried number irregularly	26	30	28	18	102
a^7 Wrote number to be carried	34	25	18	12	89
a^8 Carried wrong number	28	19	26	14	87
a^9 Irregular procedure in column	16	29	23	18	86
a^{10} Grouped two or more numbers	25	22	21	16	84
a^{11} Split numbers	12	29	25	14	80
a^{12} Used wrong fundamental operation	23	25	20	11	79
a^{13} Lost place in column	17	17	17	14	65
a^{14} Depended on visualization	24	8	27	2	61
a^{15} Disregarded column position	34	11	9	1	55
a^{16} Omitted one or more digits	13	21	13	5	52
a^{17} Errors in reading numbers	14	10	21	7	52
a^{18} Dropped back one or more tens	13	12	17	5	47
a^{19} Derived unknown combination from familiar one	13	7	11	11	42
a^{20} Disregarded one column	15	11	8	2	36
a^{21} Error in writing answer	12	3	14	5	34
a^{22} Skipped one or more decades	11	7	9	5	32
a^{23} Carried when there was nothing to carry	6	9	9	5	29
a^{24} Used scratch paper	7	5	9	0	21
a^{25} Added in pairs, giving last sum as answer	6	6	9	2	20
a^{26} Added same digit in two columns	10	6	1	1	18
a^{27} Wrote carried number in answer	10	2	2	1	15
a^{28} Added same number twice	4	1	3	3	11
a^{29} Began with left column	1	1	1	0	3
a^{30} Confused columns	1	0	0	0	1
a^{31} Added carried number twice	0	1	0	0	1
a^{32} Subtracted carried number	0	0	0	1	1
a^{33} Added imaginary column	0	0	1	0	1
Total number of subjects	96	124	116	78	414

sive study of the applications of diagnostic procedures that has yet been published.

Detailed analyses of the types of errors in the four processes in fractions and decimals have been published by Brueckner,[46] Morton,[47] and others. The bases of the investigations by Brueckner are the errors of pupils on standardized diagnostic tests containing a wide range of types of examples in each process. The method of determining the types of error was the examination of test papers rather than the direct observation of the pupils' work. The table on p. 59 contains the analysis of errors in division of fractions. The table on p. 56 gives the data for the analysis of difficulties in multiplication of decimals.

(3) The information secured by a study of errors found in the work on tests is often inadequate since it does not make clear the reasons for many of the errors. Uhl[48] suggests that in such cases the pupil should be asked to do the work aloud so that the observer may analyze the methods and mental processes used by the pupil in attempting to solve the example. The types of difficulties that are found are suggested in the discussion. Miss Probst, principal of the Calhoun School, Minneapolis, makes the following report[49] of a survey of forty-five pupils who were

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[46] L. J. Brueckner, "Analysis of Errors in Fractions," *Elementary School Journal*, Vol. 27, June, 1928, pp. 760-770. Analysis of errors made on detailed diagnostic tests in all processes of fractions. *See also* Brueckner, "A Technique for Analyzing the Distribution of Drill in Fractions," *Journal of Educational Method*, Vol. 7, May, 1928, pp. 352-358.

[47] R. L. Morton, "An Analysis of Pupils' Errors in Fractions," *Journal of Educational Research*, Vol. 9, Feb., 1924, pp. 117-25.

[48] W. L. Uhl, "The Use of Standardized Materials in Arithmetic for Diagnosing Pupils' Methods of Work," *Elementary School Journal*, Vol. 18, Nov., 1917, pp. 215-18.

[49] E. Probst, "Following Up a Survey of Instruction," *Proceedings* of Second Annual Conference of the Minnesota Society for the Study of Education, 1924, pp. 32-37.

found to be markedly inferior in their work on the Courtis Standard Supervisory Test in Arithmetic.

Space does not permit a detailed discussion of the material used, or of the types of difficulty revealed. The revelations made by the diagnosis convinced us that the causes of difficulty lay deeper than superficial carelessness, or the missing of a certain combination. We could scarcely credit some of the queer, twisted, roundabout methods exhibited by the children when they did their thinking aloud. It amazed us to think that this had gone on, undetected, for years.

During the week following, four members of a class in practice supervision made an intensive diagnosis of the forty-five problem cases. Each child's special disabilities were ascertained, described in some detail for his teacher, charted on a diagnosis sheet, and remedial work was prescribed.

DIFFICULTIES IN THE MULTIPLICATION OF DECIMALS

	Frequency
1. Difficulties basic to any multiplication:	
(*a*) Errors in multiplication	365
(*b*) Difficulties in carrying	38
(*c*) Added instead of multiplying	36
(*d*) Errors in addition	34
(*e*) Multiplier or multiplicand copied as answer	17
(*f*) Inability to multiply by zero	11
2. Difficulties peculiar to decimal situations:	
(*a*) Placement of decimal point:	
(1) Misplacing of decimal point	631
(2) Omission of decimal point	119
(*b*) Zero difficulties:	
(1) Failure to prefix zero	87
(2) Prefixing of unnecessary zero	38
(3) Annexing of unnecessary zero	19
(4) Failure to annex zero	10
(*c*) Inability to express common fractions as decimals:	
(1) Inability to multiply decimals and fractions	62
(2) Answers written in fraction form	52
(*d*) Multiplied whole numbers and added decimals.	13

(*e*) Multiplied whole numbers and decimals separately	2
3. Other difficulties:	
(*a*) Mathematical:	
(1) Misplacing of zero	10
(2) Miscellaneous	20
(*b*) Nonmathematical:	
(1) No attempt	168
(2) Unknown	52
(3) Work incomplete	24
(4) Carelessness	6
Total	1,814

The types of difficulty disclosed were most interesting. The most common fault proved to be the habit of counting. The teachers had worked faithfully to secure automatization of all combinations, but in spite of their efforts, twenty-three counters slipped through. They counted in the most amazing way—with lips, tongue, toes and fingers. Sometimes the counting was scarcely perceptible. Fourteen had a short attention span. They could readily add columns of four or five figures, but beyond that they were lost. Fourteen moved lips constantly, vocalizing every step, ten had a bad habit of guessing, eight failed because of faulty procedure, and six failed because of slowness.

Addition difficulties—Twenty-two skipped around, selecting combinations that seemed easy to them, eighteen hunted about for addends of 10, eighteen inspected the example to find a starting point, eleven had trouble with carrying, five added all the large numbers first to get them out of the way, and nine used curious roundabout methods.

Subtraction difficulties—Fifteen showed weakness in the fundamentals, fourteen had trouble with borrowing, twelve used roundabout methods, three always subtracted the smaller numbers from the larger whether it was in the minuend or subtrahend, four added to obtain results, and three counted backwards, using the fingers to keep track of the count.

Multiplication difficulties—Ten showed weakness in fundamentals, seven had carrying difficulties, nine used the multiplicand and the multiplier interchangably, and two had zero difficulties.

Division difficulties—Nineteen had trouble with uneven divi-

sions, twelve had zero difficulties, eleven repeated the tables to secure results, eight used roundabout methods, twelve had difficulty with trial division, and six couldn't remember what to carry in the multiplication involved.

It took from forty-five to ninety minutes to complete an individual diagnosis, the time depending upon the number and kind of difficulties encountered. We were fortunate in having the assistance of student examiners, but if we had not had their help, we could readily have made our own diagnosis. Any one who is supplied with the necessary diagnostic material can do the work. As a matter of fact, it is a distinct advantage for a teacher to make her own diagnosis, and some of our teachers preferred to do so.

The children, themselves, were keenly interested in the analysis, and coöperated willingly with the teachers in their effort to improve the situation. It sometimes happened that a child had only one or two special difficulties. When these were known it was a comparatively easy matter to clear up the trouble. On the other hand, one boy in the 5A grade had a total of twenty-three separate kinds of trouble. No wonder his teachers considered him extremely "careless" in the handling of figures!

(*c*) Suggested methods of administering diagnostic and remedial procedures. Various methods of administering diagnostic procedures are now being used successfully in schools.

(1) The teacher in the classroom must be made thoroughly familiar with diagnostic procedures and the results of studies that have been made to determine the nature of pupil difficulties. These procedures should be applied by the teacher whenever a pupil encounters difficulty. The teacher can use either material prepared on the spur of the moment or standardized diagnostic tests for cases in which the analyses of the causes of difficulties is more difficult. Detailed record blanks [50] are available for summarizing the errors that are discovered. A comparison of

[50] L. J. Brueckner and Abbie Chestek, "Brueckner Diagnostic Test in Fractions," Manual of Directions, Educational Test Bureau, Minneapolis, Minnesota, 1926, p. 34. *See also* Buswell and John, *op. cit.*

ANALYSIS OF ERRORS IN THE DIVISION OF FRACTIONS

	Grade VI B	Grade VI A	Total	Per Cent
1. Used wrong process—multiplication: $1\frac{3}{8} \div 1\frac{2}{3} = \frac{11}{8} \times \frac{5}{3} = \frac{55}{24} = 2\frac{7}{24}$	723	795	1,518	31.1
2. Computation errors	365	309	674	13.8
(*a*) Division: $3\frac{3}{8} \div 1\frac{3}{4} = \frac{27}{8} \times \frac{4}{7} = \frac{27}{14} = 1\frac{13}{14}$	255	223	478	....
(*b*) Multiplication: $1\frac{1}{5} \div 3\frac{1}{2} = \frac{6}{5} \times \frac{2}{7} = \frac{12}{30} = \frac{2}{5}$	98	78	176	....
(*c*) Unknown: $3\frac{1}{3} \div 1\frac{3}{4} = \frac{10}{3} \times \frac{4}{7} = 3\frac{1}{21}$	12	8	20	....
3. Lack of comprehension of process involved	219	371	590	12.1
(*a*) Inverted dividend: $1\frac{1}{5} \div 3\frac{1}{2} = \frac{6}{5} \times \frac{2}{7} = \frac{35}{12} = 2\frac{11}{12}$	43	201	244	....
(*b*) Inverted both dividend and divisor: $1\frac{3}{8} \div 1\frac{2}{3} = \frac{8}{11} \times \frac{3}{5} = \frac{24}{55}$	50	38	88	....
(*c*) Added denominators and multiplied numerators: $1\frac{3}{8} \div 1\frac{2}{3} = \frac{11}{8} \times \frac{3}{5} = \frac{33}{13} = 2\frac{7}{13}$	43	52	95	....
(*d*) Added numerators and multiplied denominators: $1\frac{1}{5} \div 3\frac{1}{2} = \frac{6}{5} \times \frac{2}{7} = \frac{8}{35}$	27	18	45	....
(*e*) Disregarded denominator in quotient: $3\frac{1}{8} \div 1\frac{1}{4} = \frac{25}{8} \times \frac{4}{5} = 5$	47	45	92	....
(*f*) Disregarded numerator in quotient: $\frac{1}{9} \div \frac{1}{3} = \frac{1}{9} \times \frac{3}{1} = 3$	9	17	26	....
4. Difficulty in reducing fractions to lowest terms	259	177	436	8.9
(*a*) Did not reduce fraction: $1\frac{1}{3} \div 3\frac{1}{3} = \frac{4}{3} \times \frac{3}{10} = \frac{4}{10}$	223	150	373	....
(*b*) Divided denominator by numerator: $1\frac{3}{8} \div 1\frac{2}{3} = \frac{11}{8} \times \frac{3}{5} = \frac{33}{40} = 1\frac{7}{8}$	36	27	63	....
5. Difficulty in changing mixed numbers to improper fractions: $3\frac{1}{3} \div 1\frac{3}{4} = \frac{10}{3} \times \frac{4}{7} = \frac{20}{18} = 1\frac{1}{9}$	220	201	421	8.6
6. Omitted example (no attempt)	192	214	406	8.3
7. Failure to change improper fractions to mixed numbers: $3\frac{1}{8} \div 1\frac{1}{4} = \frac{25}{8} \times \frac{4}{5} = \frac{5}{2}$	223	126	349	7.2
8. Errors in copying: $1\frac{1}{4} \div \frac{1}{3} = \frac{5}{2} \times \frac{3}{1} = \frac{15}{2} = 7\frac{1}{2}$	61	52	113	2.3
9. Difficulty in cancellation	11	63	74	1.5
(*a*) Canceled within denominators: $\frac{5}{6} \div 4 = \frac{5}{8} \times \frac{1}{4} = \frac{5}{6}$	2	9	11	....
(*b*) Canceled within numerators: $1\frac{1}{5} \div 3\frac{1}{2} = \frac{6}{5} \times \frac{2}{7} = \frac{3}{35}$	5	14	19	....
(*c*) In complete cancellation called quotient zero: $4\frac{1}{2} \div 4\frac{1}{2} = \frac{9}{2} \times \frac{2}{9} = 0$	4	40	44	....
10. Difficulty unknown: $1\frac{1}{3} \div 3\frac{1}{3} = \frac{1}{3}$	75	219	294	6.0
Total	2,348	2,527	4,875	99.8

the results revealed by diagnostic studies made before and after a remedial program will demonstrate its effectiveness. In many cases the difficulty can be removed by a few specific suggestions; in others improvement is made very slowly.

(2) In some schools pupils markedly deficient in arithmetic have been placed in "hospital classes" in which they work under the direction of experts in diagnostic and remedial work. Sometimes the pupils in such classes make a marked improvement in a short time and are returned to their regular classes.

(3) Pupils are often grouped in the classroom according to their difficulties.

(4) The use of individualized instruction materials greatly facilitates diagnostic work. Pupils who are not making progress on the practice exercises should be examined for the purpose of determining the causes of their lack of progress. Well organized instructional materials constitute in themselves effective remedial exercises.

(5) Special attention should be given to the possibility of eliminating and preventing known causes of difficulty in the preparation of drill exercises by constructing units of work designed to make clearer the particular process or processes involved.

(6) *Diagnosis of pupil difficulties in problem solving.* (*a*) At the present time there are no comprehensive quantitative analyses of difficulties in problem solving similar to these for the various processes in arithmetic. Osburn [51] reports an analysis of errors on the "Buckingham Scale for Problems in Arithmetic." His method of procedure was to determine the cause of the errors by an examination of the work done on the test papers. Similar studies are

[51] W. J. Osburn, "Diagnostic and Remedial Treatment for Errors in Arithmetical Reasoning" (Mimeographed), State Department of Public Instruction, Madison, Wis., 1922, p. 12.

reported by Stevenson [52] and Wilson.[53] These investigations agree in that they report a large per cent of failure due to ability to compute accurately, inability to comprehend the meaning of the statements in the problems, faulty reading habits, and failure to understand number relations. Buswell and Judd [54] criticize the procedure used in such investigations because the reasons for the difficulties were not determined by "working directly with the child. It is at just this point that the value of one method of diagnosis exhibits great superiority over the other." Banting [55] reports the results of a study of the specific causes of difficulty revealed by working directly with pupils in grades below the junior high school. His list is much more detailed than any other that has been published. While no data are given as to the frequency with which each kind of difficulty was found, it can be made the basis of a comprehensive study to determine the relative prevalence of each type.

Banting's list of causes of difficulties in problem solving is as follows:

(*a*) Failure to comprehend the problem in whole or in part. This may be due to any one of the following:
1. Lack of general ability in silent reading.
2. Lack of knowledge of the technical terms used, that is, inability to read the language of arithmetic.
3. Carelessness in reading. The child may know how to read the problem but yet fail to comprehend it because

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[52] P. R. Stevenson, "Increasing the Ability of Pupils to Solve Arithmetic Problems," *Educational Research Bulletin* No. 13, Vol. 3, Ohio State University.

[53] Estaline Wilson, "Improving the Ability to Read Arithmetic Problems," *Elementary School Journal*, Vol. 22, Jan., 1922, pp. 380-386. Reports experimental instruction giving specific drill in the reading of arithmetic problems.

[54] Buswell, and Judd, *op. cit.*

[55] G. O. Banting, "The Elimination of Difficulties in Reasoning," *Second Yearbook* of the Department of Elementary School Principals, pp. 411-421.

of lack of care and attention. This often results in a partial solution of the problem.

4. Lack of the necessary experiences to reproduce mentally the concrete situation of the problem.

(*b*) Lack of the ability to perform accurately and readily the fundamental operations.

(*c*) Lack of the knowledge of facts essential to the solution of a problem. For example, lack of knowledge of the tables of weights and measures, etc.

(*d*) Lack of the ability to identify the proper process or processes with the situations indicated in the problem. One may understand the processes very well and yet not know which to choose to solve a particular concrete problem. The lack of this ability, not to know whether to add, subtract, multiply, or divide in a concrete case is characteristic of so-called dull pupils in arithmetic, and is the chief cause of the painful stabbing, the mere juggling with figures that is the despair of the teacher in the middle and upper grades.

(*e*) Lack of sufficient interest in the problem to inspire the required mental effort.

(*f*) Failure to form the habit of verifying the results. Pupils who are able to read the problem and to identify the proper process often make snap judgments, which are easily apparent if an attempt is made to verify the partial and the total results.

(*g*) The habit of focusing the attention upon the numbers and being guided by them instead of by the conditions of the problem. For example, in a problem in which the essential fact was that a man received $18 for 24 hours' work, a number of children divided 24 by 18 to find the hourly wage, because 18 is a smaller number than 24. It will be noted that the correct process was identified. Another example is the fact that many children feel that they must use every number stated in a problem in its solution.

(*h*) Akin to the foregoing, pupils are sometimes completely nonplussed by large numbers. Though they can read the problem and identify the process when smaller numbers are used, they are perplexed by numbers larger than those of everyday experience.

(*i*) The habit of being guided by some verbal sign instead of making an analysis of the problem. For example, in the problem from Buckingham's test, "A boy had 210

marbles, and lost one-third of them. How many had he left?" A bright boy whose answer was 70, explained his mistake as follows: "Miss ——— (his teacher) told us that if we saw 'of' after a fraction in a problem we were to multiply." Other examples are rules given based not on an analysis but upon some verbal expression. For example, in the problem, "What part of 36 is 9?" teachers frequently tell pupils that the number after "of" is always the base and we must divide the other number by it.

(*j*) Lack of ability or care to properly arrange the written work in orderly, logical form. In longer problems this is a fruitful source of error.

(*k*) The failure to recognize the mathematical similarity to type problems which the pupils understand, because of some unusual situation in the problem in question. For example, the pupil who readily solved problems dealing with the purchase and sale of familiar things, failed when given a problem dealing with the purchase and sale of a farm.

(*l*) Lack of ability to understand quantitative relations, such as:

1. Cost, loss or gain, selling price
2. Income, expenditures, amount saved
3. Interest, rate, time principal, amount
4. Time, distance, rate

In order to solve problems containing such quantities one must know not only their meaning but the relations existing between them.

(*m*) The pupil may fail because the problem requires exertion beyond his span of attention.

(*n*) The pupil may fail because of absolute inability to do reflective thinking.

(*b*) The following types of exercises suggest the methods that are being used both to determine the causes of difficulties in problem solving and also to serve as exercises to improve ability to solve problems.

1. Naming the process to be used in solving problems with or without numbers.
2. Stating what facts are given in the problem.
3. Stating what the problem asks for, or what is to be found.
4. Estimating answers to examples and problems.

5. Testing the ability of the pupil to follow specific directions.
6. Testing the ability of the pupil to do the computations involved.
7. Supplying numbers missing in problems to test the pupil's grasp of the situation presented.
8. Vocabulary tests, such as tests of meanings of terms in problems, abbreviations, and symbols of all kinds, to determine the extent to which lack of vocabulary causes weakness in problem solving.
9. Requiring the pupil to restate a problem in his own words.
10. Supplying a question to complete a problem involving a given set of data or concerning a particular situation.
11. Formulating check problems in which one checks the others.
12. Requiring pupils to prepare original problems illustrating processes.
13. Judging the correctness of statements involving number.
14. Testing the ability of the pupil to use the index, table of contents, and the appendix of the textbook.
15. Testing the pupil's knowledge of important facts concerning the units of measurement.
16. Requiring the pupil to state the steps in the solution of problems involving two or more steps.
17. Testing the ability of the pupils in the primary grades to demonstrate the correctness of solution by means of concrete objects.
18. Testing the ability of the pupil to select the correct solution from several suggested solutions.
19. Testing the ability of the pupil to solve simple oral problems of the type causing difficulty.

These procedures lend themselves readily to the use of the newer types of objective examinations, such as completion tests, multiple-choice tests, and the like. Such tests enable the teacher to determine in an effective way the status of the ability of the whole class in various aspects of the elements involved in problem solving.

(*c*) The results of experimental work on the value of various methods of improving the ability of pupils to solve problems are unanimous as to the value of systematic practice in problem solving.

Newcomb's [56] experiment showed that a method that emphasized "a careful, systematic, and logical" procedure in problem solving resulted in appreciably greater improvement in both accuracy and speed of reasoning than was secured with groups not taught such a procedure.

Stevenson's [57] experiment showed that slower pupils are markedly helped by systematic practice exercises in problem solving.

Lutes [58] found that specific practice on the computations involved in the solution of problems resulted in a greater improvement in the ability to solve problems in a standardized test than two methods that he labeled the "method of choosing operations" and the "method of choosing solutions"; however, all methods resulted in a marked improvement. As Lutes says, "Improvement in computational ability does increase ability to solve verbal problems; whether it increases ability to do arithmetical reasoning cannot be stated from the results of this study. It does improve ability to earn scores on tests of ability to solve verbal problems, which is the school's definition of arithmetical reasoning."

As the result of a comprehensive experiment Washburne and Osborne [59] come to the following conclusions:

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[56] R. S. Newcomb, "Teaching Pupils How to Solve Problems in Arithmetic," *Elementary School Journal*, Vol. 23, Nov., 1922, pp. 183-189.

[57] Stevenson, *loc. cit.*

[58] O. S. Lutes, *An Evaluation of Three Techniques for Improving Ability to Solve Arithmetic Problems. A Study in the Psychology of Problem Solving*, University of Iowa Monograph in Education No. 6, First Series, University of Iowa, Iowa City, Iowa, 1926, p. 42.

[59] Carleton W. Washburne and Raymond Osborne, "Solving Arithmetic Problems," *Elementary School Journal*, Vol. 27, Sept., 1926, pp. 60-66. Compares results achieved in school with norms of practice outside of school. Advocates raising standards in addition and subtraction and slightly reducing standards in multiplication, division, and fractions.

Training children to analyze problems, training them to see analogies between difficult problems and similar simple problems, and merely giving them many problems to solve without any special technique all result in remarkable improvement in problem-solving ability—both in selection of process and mechanical accuracy. Training in the seeing of analogies appears to be equal or slightly superior to training in formal analysis for the superior half of the children; analysis appears to be decidedly superior to analogy for the lower half; but merely giving many problems without any special technique of analysis or the seeing of analogies, appears to be decidedly the most effective method of all.

These experiments, and others of a similar nature, suggest the essential elements of an effective approach to the improvement of problem-solving ability:

1. Increased emphasis on skill and accuracy in computation
2. A systematic series of exercises on problem solving
3. An abundance of suitable problems based on natural situations within the experiences of the pupils

Studies by Partridge [60] and Brooks [61] suggest the importance of a careful check of the vocabulary in arithmetic textbooks with suitable standard word lists. Thorndike [62] emphasizes the following sources of difficulties that arise in framing problems, and warns teachers to avoid them:

1. *Rare and unimportant words that occur in the first fifty pages of some well-known lower grade arithmetics:*

absentees	cinnamon	installment	proprietor
admitted	confectioner	insurance	purchased
alternately	deposited	mentally	respectively
baking powder	hesitation	mercury	supply
camphor	income	phaeton	treasury

[60] Clara Martin Partridge, "Number Needs in Children's Reading Activities," *Elementary School Journal*, Vol. 26, Jan., 1926, pp. 357-366.

[61] S. S. Brooks, "A Study of the Technical and Semitechnical Vocabulary of Arithmetic," Educational Research Bulletin No. 5, May 26, 1926, Ohio State University, pp. 219-222.

[62] Edward L. Thorndike, *The Psychology of Arithmetic* (Macmillan Co., 1922).

2. *Misleading facts and procedures*
"At $.13 a dozen, how many dozen bananas can you buy for $3.12?"
3. *Trivialities and absurdities*
"From the Declaration of Independence to the World's Fair in Chicago was 9 times as many years as there are stripes in the flag. How many years was it?"
4. *Useless methods*
"If I set 96 trees in rows, sixteen trees in a row, how many rows will I have?" This method forms the habit of treating by division a problem that in a real solution would be solved by counting the rows.
5. *Problems whose answers would, in real life, be already known*
"A clerk in an office addressed letters according to a given list. After she had addressed 2,500, $\frac{4}{9}$ of the names on the list had been used; how many names were in the entire list?"
6. *Needless linguistic difficulties*
"If a croquet-player drove a ball through 2 arches at each stroke, through how many arches will he drive it by 3 strokes?"
7. *Ambiguities and falsities*
"How many lines must you make to draw ten triangles and five squares?" [It can be done with 8 lines, though the answer the book requires is 50.] "John earned $4.35 in a week, and Henry earned $1.93. They put their money together and bought a gun. What did it cost?" [Perhaps $5, perhaps $10. Did they pay for the whole of it? Did they use all their earnings, or less, or more?]

Measurement of results of teaching. The results of the teaching of arithmetic include much more than the ability to work examples and to solve problems. The attitude of the pupil toward the subject, his desire to continue the study of arithmetic, his true appreciation of quantitative aspects of life, his clearer understanding of the problems of the home, industry, society, government, and many similar outcomes are among those that are the most valuable. The development in the pupil of such desirable social qualities as self-control, the ability to appraise his efforts and his own contribution to the advancement of the social group, the ability to direct his activities according to wor-

Brueckner Diagnostic Tests in Fractions (Educational Test Bureau, Minneapolis, Minn., 1926). Manual, tests, and individual blanks.

Buswell and John Diagnostic Chart for Individual Difficulties in Fundamental Processes in Arithmetic (Public School Publishing Co., Bloomington, Ill).

The new types of objective examinations. Arithmetic lends itself readily to the use of the newer types of objective exercises. Illustrations of various kinds are as follows:

1. *Completion:*
   (*a*) In one foot there are ..... inches.
   (*b*) The name of the answer of an addition example is .....
   (*c*) Find the cost of ..... pounds of sugar at ..... a pound.

2. *Multiple choice:*
   (*a*) What is the cost of 29 pounds of butter at 49¢ a pound?
   $10.21 $14.21 $22.01
   (*b*) In a foot there are (4, 8, 12, 16) inches.
   (*c*) What is the price of a pound of butter if 16 pounds cost $8.00?
   What are you to find?
   (1) The price of 16 pounds of butter
   (2) The cost of 2 pounds
   (3) The number of ounces in a pound
   (4) The price of a pound of butter

3. *True-false tests:*
   (*a*) In a bushel there are 4 pecks.
   (*b*) There are 8 quarts in a gallon.
   (*c*) September has 31 days.

4. *Specific answer tests:*
   (*a*) What is the name of the answer in a multiplication example?
   (*b*) How many days are there in June?
   (*c*) What process or processes are used in solving this problem?
   What is the cost of 5 apples at 5 cents each? .....
   (*d*) On what page is there a discussion of bank checks? .....

5. *Recognition tests:*
   (*a*) $\frac{4}{5}$ is a ..... fraction.
   proper, improper
   (*b*) The formula for interest is .....
   $i = \frac{rt}{d}$, $i = prt$, $i = \frac{t}{pr}$

6. *Yes-no tests:*
   (*a*) Is a foot less than a mile?
   (*b*) Does $\frac{1}{2}$ equal .5?
   (*c*) Is an acre less than a square rod?

7. *Matching exercises:*
   (*a*) Write the number of the correct formula before each expression.
   ..... area of triangle
   ..... area of a rectangle
   ..... interest
   ..... volume of rectangular solid

   1. $i = prt$
   2. $A = \frac{1}{2}ba$
   3. $V = lwd$
   4. $A = lw$

Values of the new type of examinations. The new types of examinations can be much more accurately scored than those of the traditional type since their scoring is objective rather than subjective. The newer types of tests are also much more easily and quickly scored. Their use enables the teacher to secure in an effective way comprehensive information concerning the status of the whole class at one time since they eliminate much of the usual procedure of questions by the teacher and answers by the individual pupils. Excellent discussions of the limitations of objective tests and items to be considered in their preparation are contained in the following:

PATERSON, D. G., *Preparation and Use of New Type Examinations* (World Book Co).
RUCH, G. M., *The Improvement of the Written Examination* (Scott, Foresman & Co.).
RUSSELL, CHARLES, *Classroom Tests* (Ginn & Co.).

thy social objectives, and the desire to assume his task as an active participant in the affairs of society have been contributed to by the methods that have been used in arithmetic instruction. The supervisor and teacher must consider these concomitant outcomes in any evaluation that is made of the work in arithmetic.

There are available fairly reliable standardized tests for measuring the abilities of pupils in the various processes and in problem solving. These also will help in the diagnosis of the causes of deficiency. The more modern textbooks in arithmetic contain standardized problem scales, diagnostic tests, and general survey tests that enable the teacher to determine the progress pupils are making at regular intervals during the year.

Following is a selected list of standard tests in problem solving, diagnosis, and fundamentals.

Problem Scales

Brueckner, Anderson, Banting, and Merton, Diagnostic Tests and Remedial Exercises in Arithmetic (John A. Winston Co., 1928). Complete graded series of standardized problem scales and diagnostic tests for each grade from III to VIII.

Buckingham Scale for Problems in Arithmetic (Public School Publishing Co., Bloomington, Ill., 1920).

Compass Diagnostic Tests in Arithmetic (Scott, Foresman & Co., 1925). Tests for computation and reasoning.

Los Angeles Diagnostic Test in Reasoning in Arithmetic (Research Service Co., Los Angeles).

Monroe Standardized Reasoning Test in Arithmetic (Public School Publishing Co., Bloomington, Ill., 1921).

Otis Arithmetic Reasoning Test (World Book Co.). This is Test 5 of the Otis Group Intelligence Test. It can be purchased separately.

Peet-Dearborn Progress Tests in Arithmetic (Houghton Mifflin Co., 1920). This test consists of five parts—addition, subtraction, multiplication, division, and problems.

Stanford Achievement Test, Arithmetic Examination (World Book Co., 1922). This is part of the *Stanford Achievement*

Test but it is also published separately. The test consists of two parts: one in computation and one in reasoning.

Stevenson Problem Analysis Test, Diagnostic (Public School Publishing Co., Bloomington, Ill., 1924).

Survey Tests in Four Fundamental Processes

Brueckner and Others, Diagnostic Tests and Remedial Exercises in Arithmetic (John C. Winston Co., 1928). Contains survey tests in all processes for all Grades from III to VIII.

Cleveland-Survey Tests in Arithmetic (Public School Publishing Co., Bloomington, Ill.). Grades III to VIII.

Courtis Standard Research Tests, Series B (S. A. Courtis, 1807 East Grand Boulevard, Detroit, Michigan). Grades IV to VIII.

Courtis Supervisory Tests in Arithmetic (S. A. Courtis, Detroit, Michigan). Test A and Test B, Grades IV to VIII.

Monroe General Survey Scales in Arithmetic (Public School Publishing Co., Blomington, Ill).

Osburn's Wisconsin Inventory Test (Public School Publishing Co., Bloomington, Ill).

Peet-Dearborn Progress Tests in Arithmetic (Houghton Mifflin Co., Boston).

Woody Arithmetic Scales (Bureau of Publications, Teachers College, Columbia University, New York City). Grades III to VIII. Series B is an abbreviated form of Series A. A second form of these scales has been prepared by W. W. Theisen and published by the Parker Co., Madison, Wis.

Woody-McCall Mixed Fundamentals (Bureau of Publications, Teachers College, Columbia University, New York City). Grades II to VIII.

Los Angeles Diagnostic Test in Fundamentals of Arithmetic (Research Service Co., Los Angeles). Grades III to VIII.

Diagnostic Tests for Individual Diagnosis

Brueckner, Anderson, Banting, and Merton, Diagnostic Tests and Remedial Exercises in Arithmetic (John C. Winston Co., 1928). Diagnostic tests in all processes, Grades III to VIII.

Brueckner Diagnostic Tests in Whole Numbers (Educational Test Bureau, Minneapolis, Minn., 1926). Manual, tests, and individual record blanks.

The equipment needed. The success with which arithmetic is taught is probably determined to a large extent by the instructional materials used in the classroom.

1. *The Textbook.* A good textbook should be in the hands of every pupil from Grades III to VI. In some schools, books are used in Grade II. No textbook should be selected until after its contents have been analyzed according to acceptable criteria. Thorndike,[63] Knight,[64] Brueckner,[65] and others have suggested techniques for analyzing the content of the drill materials in textbooks. Monroe [66] and others have suggested various bases on which the problems can be classified. A comparison of the results of such quantitative studies makes it possible to determine the specifications, if any, according to which the materials in different books have been organized. Many cities have prepared plans for the rating of textbooks in arithmetic, some of which contain numbers of items of an objective type that can be answered quantitatively.

The following list of items suggests some of the kinds of information of an objective type that should be considered in the selection of a textbook. While it may not be

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[63] Edward L. Thorndike, "The Psychology of Drill in Arithmetic: The Amount of Practice," *Journal of Educational Psychology,* Vol. 12, April, 1921, pp. 183-194. An analysis of the amount of drill provided in representative textbooks for each possible combination in the four fundamental operations. Shows extremely wide variation from combination to combination.

[64] F. B. Knight, "An Analysis of Multiplication Drill," *Journal of Educational Research,* Vol. 8, Oct., 1923, pp. 199-207.

[65] L. J. Brueckner, "A Technique for Analyzing the Distribution of Drill in Fractions," *Journal of Educational Method,* Vol. 7, May, 1928, pp. 352-358. *See also* the *Third Yearbook* of the Department of Superintendence, Feb., 1925. Excellent chapter on arithmetic.

[66] Monroe and Clark, "The Teacher's Responsibility for Devising Learning Exercises in Arithmetic," Bureau of Educational Research Bulletin No. 31. University of Illinois Bulletin, Vol. 23, No. 41, University of Illinois, Urbana, Ill., 1926, p. 92.

possible to make an exhaustive study of all of the items, selected topics judged to be of importance should be considered very carefully before the final choice is made.

ITEMS TO BE CONSIDERED IN EVALUATING TEXTBOOKS

1. *The point of view of the authors.*
   (*a*) Recognition of social utility
   (*b*) Stress on experiences in life of the child
   (*c*) Intercorrelations of arithmetic with other subjects
   (*d*) Scientific work as basis of texts
   (*e*) Use of modern teaching materials

2. *The presentation of review material for use at the beginning of the year.*
   (*a*) Provision for initial tests to determine status of class
   (*b*) Provisions for adapting the review to the needs of the pupils
   (*c*) Helps to aid pupils in reviewing processes
   (*d*) The standards of attainment proposed
   (*e*) Provisions for systematic check on abilities during the year by standardized tests

3. *The presentation of the processes new to the grade.*
   (*a*) Method of showing need of the process
   (*b*) Clarity of explanations
   (*c*) The consideration given to the steps in the learning process
   (*d*) Use of visual aids
   (*e*) The distribution of practice over the whole process
   (*f*) Provision for cumulative reviews to provide for retention of skills previously acquired
   (*g*) Special consideration of difficult spots in processes
   (*h*) Provision for diagnostic tests to locate deficiencies of pupils
   (*i*) Consideration of social utility of processes involved

4. *The nature of the problem content.*
   (*a*) Number of problem groups classified according to the following types:
   (1) Isolated; (2) topical; (3) related; (4) suggested local activities of various kinds; (5) helps in problem solving.

(*b*) Problems classified according to the following purposes:

(1) Presentation of new process; (2) applications of new processes; (3) helps in problem solving; (4) applications of concepts in local situation; (5) consideration of quantitative aspects of production, distribution, and consumption; (6) review questions; (7) scales for measuring ability to solve problems; (8) applications of arithmetic in history, geography, etc.; (9) history of the development of various number concepts.

(*c*) Consideration of problems as to their structure:

(1) One step; (2) two steps; (3) three or more steps.

(*d*) Content of the vocabulary checked against standard lists

(*e*) Consideration of the findings of curriculum investigations as to the relative importance of various topics

(*f*) Variety of appeal through varied applications of arithmetic to industry, business, and the home

(*g*) The number of problems of undesirable types, involving:

(1) Fantastic, unreal situations; (2) trivialities and absurdities; (3) misleading facts; (4) useless methods and operations; (5) situations where answers in real life would already be known; (6) catch questions; (7) obsolete, useless computations; (8) applications outside of the range of pupil's experiences.

5. *Special features.*

(*a*) Character and quality of illustrations

(*b*) Size of type, appearance of page

(*c*) Use of modern instructional materials

(1) Survey tests; (2) diagnostic tests; (3) problem scales; (4) new types of objective examinations; (5) periodic reviews; (6) practice exercises; (7) modern applications of arithmetic.

(*d*) Factors facilitating teaching

(1) Page unit construction; (2) elimination of reading difficulties in all explanations of new proc-

esses; (3) simplification of presentation so that the text may be as self-teaching as possible; (4) obvious and logical organization of content apparent from the headings of units of work; (5) large variety of materials adequate in amount for both examples and problems; (6) completeness of table of contents and index; (7) number of suggestions of local applications of arithmetic to vitalize the work.

6. *Provision for individual differences.*
   (*a*) Means of adapting review work to needs of the pupil
   (*b*) Provision of suitable exercises to give necessary practice to bring pupils up to standard
   (*c*) Diagnostic tests to locate difficulties on problem solving and new processes
   (*d*) Remedial exercises in processes and problem solving
   (*e*) Special types of activities for superior pupils, such as reports, original projects, local applications, more difficult problems, etc.

7. *The scientific work that is the basis of the book.*
   (*a*) Investigations by the authors themselves concerning learning difficulties of pupils, diagnostic procedures, teaching procedures, curricular content, etc.
   (*b*) Considerations of findings of other investigations

2. *Supplementary materials.* No textbook can supply all of the practice exercises needed by the slower pupils in the class without unduly increasing the size of the book. Standardized practice tests are a valuable adjunct to the textbook. Such exercises are usually well graded, have time standards, and are so constructed that the pupils can score their own papers and keep their own records, thereby relieving the teacher of much time-consuming labor. These exercises are also usually adapted for the individualizing of instruction. (See page 48.)

Diagnostic tests in all processes and specially prepared remedial exercises should also be supplied if these materials are not available in the textbooks in the hands of the pupils.

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It is usually desirable to supply the teacher with desk copies of several good arithmetic texts because of the many suggestions they contain. Copies of such books for teachers as the following should be available in the professional school library. Many of the other books to which reference has been made in this chapter should also be included in the list.

Brown and Coffman, *The Teaching of Arithmetic* (Row, Peterson & Co.).
Thorndike, E. L., *Psychology of Arithmetic* (Macmillan Co.).
Roantree, W. F., and Taylor, M. S., *An Arithmetic for Teachers* (Macmillan Co.).
Newcomb, Ralph S., *The Teaching of Arithmetic* (Houghton Mifflin Co.).
Morton, Robert Lee, *Teaching Arithmetic in the Primary Grades* (Silver, Burdett & Co.).
Harap, Henry, *Education of the Consumer* (Macmillan Co.).

Reference materials, such as *World Almanac,* magazines, encyclopedias, government bulletins, and reports published by the Departments of Agriculture, Commerce, Labor, and the Interior contain much valuable information of a quantitative type which can be used in lessons emphasizing the informational rather than the computational aspects of arithmetic.

The teacher should select for illustrative purposes various materials used in the local community, such as tax receipts, bank reports, checks, sales slips, bills, receipts, and similar blanks used in business. The collection of such materials can be assigned to the class as committee work or as individual projects.

In the lower grades the teacher should have available many varieties of objects to be used in making the number work concrete. Children enjoy number games, playing store, and many other activities in which considerable use is made of a wide variety of materials.

Keeping up with the literature of arithmetic teaching in the elementary school. The current literature on the teaching of arithmetic is scattered and consequently it is very difficult for the supervisor to keep up to date on the results of experimental work in that subject.

The most valuable single reference in the teaching of arithmetic is the monograph by Buswell and Judd, *Summary of Educational Investigations Relating to Arithmetic,* published by the University of Chicago Press. In this volume are summarized the results of the important scientific investigations in arithmetic made prior to the year 1925. Since that time Buswell [67] has published each year in the *Elementary School Journal* an excellent summary of the "worth while" investigations of the preceding year.

Another valuable source of information on current thought in arithmetic is the series of yearbooks published for the National Council of Teachers of Mathematics by the Teachers College Press, Columbia University. The one magazine devoting itself exclusively to mathematics is the *Mathematics Teacher,* published under the auspices of the National Council of Teachers of Mathematics. These publications discuss topics relative to elementary and high schools.

Many magazines, such as the following, publish occasional articles on various aspects of arithmetic:

Educational Method
The Elementary School Journal
Journal of Educational Research
Journal of Educational Psychology
Journal of the National Education Association
Teachers College Record
School and Society

[67] G. T. Buswell, with the coöperation of Lenore John, "Summary of Arithmetic Investigations, 1925," *Elementary School Journal,* Vol. 26, May and June, 1927. Also Vol. 27, May and June, 1928. Summarizes fifty-eight studies.

Many of the newer courses of study, such as those for Denver, Los Angeles, St. Louis, Philadelphia, Iowa, Maryland, and North Dakota contain valuable suggestions based on summaries of scientific studies. From time to time research bureaus in cities such as Minneapolis, Denver, Boston, and Detroit and in universities, especially Illinois, Iowa, Ohio, Michigan, and Chicago, publish the results of investigations which are directly applicable to the supervision of arithmetic. Several of the yearbooks of the Department of Superintendence and of the National Society for the Study of Education also contain excellent discussions of various aspects of arithmetic.

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CHAPTER III

THE SUPERVISION OF SPELLING

BY WILLARD F. TIDYMAN

Professor of Education and Director of the Training School, State Teachers College, Fresno, California

Introduction. To execute a program of supervision in spelling, it is necessary for the supervisor to have a definite and comprehensive knowledge of the teaching of spelling; and second, it is necessary for him to be familiar with the principles of supervision, and to have some skill in directing the work of teachers. The technique of supervision, including classroom observation, conferences, and demonstration teaching is much the same in spelling as in other subjects. Such a technique is presented in Chapter I of this text, and will not be referred to further in this chapter except where it is necessary to show the application of principles to the problems peculiar to spelling. The present chapter is devoted mainly to a review of the principles and practices in the teaching of spelling which seem to be established, for the time at least, by the studies of the psychology and pedagogy of spelling, and by classroom experience and current practice where reliable, scientific data are lacking.

Aims. The following aims have been adapted from the author's book, *The Supervised Study Speller.*[1]

[1] Material has been selected freely from this book with the courteous permission of the publishers, The World Book Co. The author's *The Teaching of Spelling,* published by the same company, includes a detailed discussion of most of the topics taken up in this chapter.

A general statement of aims for the complete elementary-school course is followed by a statement of aims for each of the several grades. In analyzing and classifying the aims for the several grades, the attempt was made to select those vital phases of the composite spelling ability, in which growth is sought, and to indicate approximately what may be expected in each grade.

Aims for the Elementary School

Upon completion of the elementary-school course in spelling, it is expected that the child will be able to pronounce, spell freely, and use in writing a minimum of 3,250 common words, including modified forms and verb phrases; to understand and apply common principles governing capitalization, contractions, compounding words, abbreviations, and modified forms; to use correct spelling in all written work; to know when he is spelling correctly or incorrectly; to check all written work for correctness of spelling, before disposing of it; to use the dictionary freely for verifying the spelling, pronunciation, meaning, and use of the words; to acquire the spelling of new words easily and effectively; to appreciate correctness of spelling; and to desire to spell correctly.

Grade II

1. Accurate pronunciation of all words. Ability to recognize and give the sounds of letters and common phonograms.
2. Correct use of words in simple sentences.
3. Ability to spell the words listed, equal to the standard, or spelling quotient of 100.
4. Ability to follow the teacher in directed class study.
5. Correct spelling in all written work. Words in the text are spelled from memory, or by reference to the text; for other words, the help of the teacher is given.

Grade III

1. Accurate pronunciation of all words. Ability to use the sounds of letters and phonograms in pronouncing new and difficult words. Ability to divide words into syllables.
2. Correct use of words in common meanings. Ability to give simple, colloquial definitions.

3. Ability to spell words equal to the grade standard, or a spelling quotient of 100.
4. Ability to follow the teacher in directed class study; to suggest hard and difficult parts of words, words with similar difficulties, and review words in class study; to copy, take dictation, and to write simple original sentences.
5. Ability to write the alphabet and arrange familiar words in alphabetical order according to the first letter.
6. Correct spelling in all written work. Words studied in the text should be spelled from memory or by referring to the text, and other words should be spelled with the help of the teacher.

Grade IV

1. Accurate pronunciation of all words. Ability to divide words into syllables.
2. Correct use of words in common meanings. Ability to give colloquial definitions and synonyms.
3. Ability to spell words equal to the grade standard, or a spelling quotient of 100. Ability to tell how the past tense and present participle of a regular verb are formed, and ability to form simple plurals in *s* and *es*.
4. Ability to prepare study lists by selecting difficult words from the text, and common words misspelled in writing. Ability to study independently according to a plan outlined by the text or the teacher.
5. Ability to alphabetize words according to the second, third, or succeeding letters.
6. Use of correct spelling in all written work. Knowledge of correctness of spelling. Habit of referring to the teacher or the dictionary when in doubt.

Grade V

1. Accurate pronunciation of all words.
2. Correct use of all words in common meanings. Ability to give colloquial definitions and synonyms.
3. Ability to spell words equal to the grade standard or a spelling quotient of 100. Ability to make rules fitting the formation of the past tense and present participle of a regular verb.
4. Ability to prepare study lists by selecting difficult words from the text, and common words misspelled in writing.

Ability to study independently according to an acceptable plan.

5. Ability to use the dictionary for finding the pronunciation, meaning, use, and spelling of common words.
6. Use of correct spelling in all written work. Knowledge of correctness of spelling. Habit of referring to the dictionary or the teacher when in doubt.

Grade VI

1. Accurate pronunciation of all words.
2. Correct use of all words in common meanings. Ability to give synonyms and logical definitions.
3. Ability to spell words equal to the grade standard, or a spelling quotient of 100. Ability to use common rules of spelling to spell and test the spelling of certain modified forms.
4. Ability to prepare study lists by selecting difficult words, and common words misspelled in writing. Ability to study independently according to an acceptable plan.
5. Ability to use the dictionary for finding the pronunciation, meaning, use, and spelling of any word.
6. Use of correct spelling in all written work. Knowledge of correctness of spelling. Habit of checking written work for correctness of spelling, and of referring to the dictionary when in doubt.

These check lists may be used by the supervisor in examining the offering in any course or textbook.

Course of study. 1. *General principles of selection and organization.* To reach the objectives for spelling outlined above, it is obvious that a broad program of work must be adopted. Plans and methods, thoroughly satisfactory in the past when we looked no further than the memorization of words in lists, become inadequate now when we take the functional and social points of view. If past experience is a trustworthy teacher, we cannot leave the new objectives to chance, the results of incidental learning. Rather, it is our task to plan definitely and specifically for each ability that we want to develop. This is true

whether we favor the informal type of procedure characteristic of project work, or whether we use the usual formal methods. The selection and organization of subject matter and activities through which the aims of spelling are reached is the problem of the course of study. The objectives of spelling are such that they cannot be reached fully through the specific exercises or activities of the spelling period. Some of the objectives can be cared for mainly in specific spelling instruction, but other objectives depend in large part upon the attention that is given to spelling in written work. Spelling has no significance for the child apart from writing, and written language arises from a desire to communicate or to express one's thought. This suggests the need for associating spelling with every phase of the expressional activities of the child.

A course of study of the proportions suggested above makes several kinds of work necessary. First, and most important, lists of words must be critically chosen, properly graded, and adequate provision for reviews must be made; second, exercises for the formation and development of such principles and rules of spelling as the child and the adult find useful in writing must be devised; third, exercises for the development of efficient methods of learning the special abilities which are essential to spelling correctly in and outside of school, must be devised; and fourth, definite suggestions and plans for the development and use of correct spelling habits in writing must be provided for.

2. *Selecting word lists.* Since the values of spelling are largely, if not wholly, specific and the value of spelling lies in the ability to spell the words that are actually used, the fundamental task of the course-of-study maker is to choose the words of maximal usefulness to the child. These can be obtained by well-known methods of investigation, providing we can agree upon the source or sources of ma-

terial. Theoretically, words may be taken from the writing vocabularies of children, writing vocabularies of adults, or from words common to both. There is little difference of opinion as to the third group. All agree that these words should be included in the spelling lists. And fortunately, the words common to the vocabularies of both children and adults constitute a considerable proportion of the total vocabularies—at least 50 per cent according to Breed. The question of the disposition of words found in the vocabularies of children only, and of those found in the vocabularies of adults only, remains a disputed question. It is partly a philosophical question, "Should education prepare explicitly for adult life or for child life?" All agree that education must prepare for adult life, ultimately. The question is, what should be set as the attainable objective during the school career of the child? Is it the ability to spell the words that he uses now, or words that he will use in adult life? It is partly a psychological problem. Can children be taught to spell words before they have use for them? Will words be retained? Can children be interested in words that they do not use? The author is inclined to favor teaching words used by children at the approximate time when they are used, and to rely upon general attitudes and habits to take care of spelling needs of later life, as these needs arise. The necessity of making a choice faces every course-of-study maker or user, and courses of study should be consistent with the conclusion reached. The recent Commonwealth investigation puts the question squarely before us.

The Commonwealth investigation gives us a list sponsored by an organization of national prominence, that is likely to have great influence in making courses of study in the future. It is significant that the investigation was devoted exclusively to a listing of words used by adults. A careful examination of the list of the 3,009 commonest

words, reported in the *Fourth Yearbook* of the Department of Superintendence, reveals a considerable sprinkling of words used by adults only. These occur in the first thousand words, as well as in the second and third thousands. Shall we teach such words as *remittance, memorandum, merchandise, invoice,* and *adjustment* reported in the first thousand words in common use, and omit such words as *creep, crept, cried, cruel, cure, curtain, curve, dairy, damp, dangerous,* and *debt,* which occur frequently in the writing of children?

A second factor enters into the selection of word lists, that of difficulty. Difficulty is worthy of consideration largely as a means of avoiding a waste of effort placed on words already learned incidentally. Since probably all words present some spelling difficulty, to some pupils somewhere in the course, the difficulty of the words is a minor factor in selection.

The basal word lists will include all commonly used forms of the word, all confusing phrases and groups of words, all common contractions, and the like. The lists, also, will include words peculiar to the locality. And finally, the pupils will be encouraged and assisted in adding to the common list those words peculiar to their own individual vocabularies which present spelling difficulties to them.

The problem of grading comes up next. Keeping before us the functional view of spelling, words will be studied as needed for expressing ideas in writing, in connection with the varied activities and experiences of the children. This forces us to make a study of children's uses of words to give a basis for grading. The use of the word can be determined only by extended studies of children's spontaneous writing. No technical difficulties are in the way. It is simply a matter of time and perseverance. A number of such studies have been made and several have been reported in

sufficient detail to be useful in grading. Such is the Kansas City list. For the most part, however, investigators have reported simply the grades in which the words were first used, or in which they were first used by a given per cent of the pupils.

The difficulty of words is a factor in grading. Our chief concern is to avoid having children waste time on words already learned. After an extended study of the behavior of words of varying degrees of difficulty, the author reached the conclusion that to avoid wasting time on words that are too easy, and at the same time insure the mastery of the hard words, the words must be placed in the grades where, in addition to being used, they are spelled correctly at sight by between 40 and 70 per cent of the pupils.

A further problem relates to the number and distribution of words in the course. In regard to number there is considerable agreement in practice, a general tendency to limit the words to a comparatively small number. This practice is based upon the findings in numerous investigations, which show that the number of words in common use is comparatively limited. Thus, in twelve investigations of the writing vocabularies of children and adults, the average number of common words reported was 2,619.[2] In these investigations, of course, words of very rare use were not included. The statement of Jones that the average vocabulary of eighth-grade pupils is 2,500 words is pertinent, but it has never been verified. The tendency now is to include in the spelling course from 3,000 to 4,000 words.

To the matter of the distribution of words among the grades, little consideration has been given. Quite generally the words have been divided about equally among the grades. It is quite clear that the factors that should determine the distribution of words are the language needs of

[2] *See* p. 103.

the child, and the capacity of the children to acquire new words. The former seems to be the more important of the two. The distribution of words should be based upon the growing language needs of the pupils. The investigation of children's vocabularies shows a decidedly rapid increase in the lower grades with a flattening out of the curve from grade to grade, above Grade V. Jones reports the average number of words per pupil in grades two to eight as follows: 521, 908, 1,235, 1,489, 1,710, 1,926, 2,135.[3] The Tidyman investigation shows the grades in which 2,000 common words appear for the first time.[4] The general tendency toward rapid increase in the lower grades is shown in the following table:

Grade III	1,103	Grade VI	293
Grade IV	726	Grade VII	169
Grade V	578	Grade VIII	113

The conclusion seems to be that the bulking of words should take place in the lower grades where the language vocabulary is increasing rapidly, while shorter lists should be provided for the upper grades. It is quite possible, although this has not been thoroughly investigated, that variability in children's writing vocabularies increases as pupils go through the grades, making the spelling problem in the upper grades practically an individual problem. If this is true, the prescribed grade lists should become smaller in the upper grades, and more provision should be made for individual study lists, and for words peculiar to the writing of each individual pupil.

The manner of listing words is one upon which there is considerable difference of opinion and practice. Shall

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[3] W. F. Jones, *Concrete Investigations of the Material of English Spelling* (University of South Dakota, 1914).

[4] W. F. Tidyman, "A Survey of the Writing Vocabularies of Public School Children in Connecticut," Teacher's Leaflet No. 15, Nov., 1921, United States Bureau of Education, Washington, D. C.

words be placed in lists, or in context? If lists are used, how shall words be grouped? There are some thoughtful people who still believe that words should be taught in their meaningful relations, in sentences, or in paragraphs. The reasoning seems to be that since words are used in sentences they should be studied in sentences. The people holding this opinion seem to attach little importance to the fact that the writing vocabulary develops many years after the speaking vocabulary, that words studied in spelling are quite familiar to the child in conversation and oral language. The convenience of listing, and other values that appear in the succeeding discussion, are sufficiently convincing to lead the author to favor listing, except for those words that are likely to be confused in meaning and use. These should be presented in context.

Lists of words may be arranged according to similarities of meaning or form. The former facilitates the presentation and review of words in context. The latter is coming into wider use, and there is some evidence to show that grouping words according to similar difficulties makes learning easier. Grouping [5] according to spelling difficulties or hard parts emphasizes the parts of the words to which special attention should be given, and makes possible the comparison of words having similar difficulties. Another principle of grouping is placing words that have similar phonetic elements together. This is valuable in the beginning work in spelling, in learning the sounds of letters and common phonograms, and in learning the spelling of phonetic words.

Words presented in lists may be divided into syllables. The syllable is the natural unit in vocalization and visualization. The narrow spacing of syllables in the book or on the board does not distort the mental image of the whole

[5] W. F. Tidyman, *The Teaching of Spelling* (World Book Co.), pp. 12*ff*.

word. Experimental studies show some advantage in learning when words are listed in syllables.[6]

Adequate provision for reviews is a matter of vital importance in spelling. It is an easy matter to present words so vividly that practically all members of the class will spell them perfectly a day or even a week later. It is a difficult matter to insure relative permanency of retention. Two questions arise, the frequency of reviews and the form of reviews. There is little direct evidence on the question of frequency of reviews. We must rely for guidance upon general principles of psychology, upon facts established in studies of the psychology of memorizing, and upon the experience of teachers in the classroom. Everything considered, a safe rule is—review constantly. In practice this principle must be translated into definite terms, and unless reviewing is to be more or less haphazard, the frequency of reviews should be adjusted to the character of the words and, ultimately, to the needs of the individual pupils.

A reasonable plan consists of systematic reviews of all new words at intervals of one week, four to six weeks, one-half year, and one year. In addition, especially hard words may be carried over for several successive weeks and for several review periods, and through several grades. Reviews in the second grade need to be more frequent. In the fourth grade and above, and possibly in the third, the reviews can be individualized. The pupils prepare spelling review lists from daily or weekly study lists and from tests.

Reviews will deal largely with words in lists, and special attention will be given profitably to words often confused in meaning or use. Use of homonyms and other confusing words, in phrases or sentences, will improve language as

[6] H. A. Greene, "Syllabication as a Factor in Learning Spelling," *Journal of Educational Research*, Vol. 8, Oct., 1923, pp. 208*ff*.

well as spelling. The extensive use of dictated or original sentences as review exercises is occasionally advocated as a means of bridging the gap between column study and use in context. Such exercises consume a great deal of time, and it is doubtful whether much is accomplished. The only experimental evidence available gives some grounds for the doubt.[7] Reviews, whether conducted individually or by groups, will seek to reveal underlearned words, and make good the deficiencies. If they are needed, contests can be used to stimulate interest.

3. *Exercises for development of principles and rules of spelling.* A second distinct kind of material for the spelling course is rules and other principles of spelling. *Rules* refer to the general principles underlying the formation of words. *Other principles* refers to the principles underlying contractions, abbreviations, compounding, and the like. In recent years, the teaching of rules of spelling has almost entirely disappeared from the spelling course. It is doubtful, however, whether there is sufficient scientific evidence to justify our going quite this far. Rules may perform the same function in spelling that they perform in other subjects; that is, they may call attention to important facts and clarify relations of facts by revealing underlying principles, and they may be useful in guiding practice, and especially in correcting mistakes. Such assumptions are tenable in spelling until completely disproved by experiments. Accepting this point of view, it is necessary next to determine what rules shall be put into the spelling course. We may choose the rules that explain the most frequent modifications in words, or we may study spelling errors and select the rules that relate to the common errors made. Horn reports having made a study of

[7] Hawley and Gallup, "Spelling List versus the Sentence Method of Teaching," *Journal of Educational Research*, Vol. 5, April, 1922, pp. 306*ff*.

the frequencies with which various modified forms occur, but his results are not available as yet. Numerous studies of spelling errors have been made, and the frequencies of certain types of errors have been listed.[8] The author studied the difficulties of 3,700 words, in an investigation as yet not reported in detail. From this study, it is found that very common mistakes are failure to drop final *e*, doubling and nondoubling of consonants, and forming the plurals of words ending in *y*. Rules that are derived from these common mistakes are:

1. Final *e* silent is usually dropped before a suffix beginning with a vowel: *love, loving, lovable.*
2. Final *e* silent is usually retained before a suffix beginning with a consonant: *love, lovely; use, useful.*
3. Words ending in *y* preceded by a consonant change *y* to *i* before an ending beginning with a vowel: *lady, ladies; happy, happier.*
4. Words of one syllable, and words accented on the last syllable ending in a single consonant (except *h* or *x*) preceded by a single vowel, double the final consonant before and ending beginning with a vowel: *win, winner; control, controlled.*
5. A final consonant, when preceded by two vowels, or when not in the accented syllable, is not doubled before an ending beginning with a vowel: *speak, speakers; enter, entering.*

In addition to difficulties presented by changes in the forms of words, difficulties are presented by contractions of words, abbreviations, certain uses of capitals, compounding words, and in the use of the hyphen in dividing words at the end of the line. So far as I know, no systematic study has been made of these difficulties in the writing of children and adults. It is conceivable, however, that a study of the principles involved would serve the same purpose as the study of rules.

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[8] Tidyman, *op. cit.*, pp. 96*ff.*

Whatever rules and principles are introduced should be preceded by an observation and analysis of word changes upon which the rules and principles are based. Obviously this cannot begin too early in the grades. Probably the fourth grade is early enough to begin the foundation of word study, and rules will be formed in this or in the succeeding grades. The needs and capacities of the pupils for the particular type of activity, should control the placement of the exercises. In the fourth grade, the pupils will begin to notice what happens to words undergoing changes to make new forms. Study and comparison of changes will lead to generalizations or rules. Finally, the pupils will be taught consciously to use rules and principles that check correctness of spelling, and to resolve doubt, both in the formal spelling lessons and in writing.

4. *Exercises for the development of methods of learning.* A third type of content for the course of study is exercises for the development of abilities useful in spelling new words, and for the development of the habit of correct spelling in writing. One of the former abilities is knowing how to study new words. It is assumed that methods of teaching in the beginning work will be consistent with sound principles of learning, and that pupils will learn to follow correct procedures in the class work. This will be done in grades two and three, where directed group study is found to be most effective. In the fourth grade, pupils have sufficient maturity and experience to direct their own study, and it is at this point that the deliberate development of independent study habits is begun. This involves making conscious and habitual in self-directed work, the correct procedure of study which has been followed in the class-directed work of the preceding grades, and to help the pupils make such modifications in the general method as fit their peculiar needs.

The plan of study that the teacher wishes to have adopted

by her class, such as the one presented in a later section, will be broken up into workable units, say six or eight, and each unit will be taught to the pupils separately, at the rate of a unit a week. The work will be cumulative, that is, each new step or exercise will be added to that of the preceding week, so that by the end of six or eight weeks a complete study plan will have been acquired by the pupils. Each step should be taught carefully to the pupils, and close supervision should be given to make sure that the pupils correctly practice the step being presented during the week. Similarly, after the whole series of steps has been learned, close supervision should be given until it is evident that the correct use of the study plan has become automatic. The study plan may well be kept before the pupils constantly on the board or in the book, during this period. When the pupils have had a chance to become familiar with the type-plan of study, they will be encouraged to make any changes in it that prove useful to them. A brief review of the study procedure will be profitable at the beginning of each successive grade.

The use of the dictionary in all ways essential to correct writing should be learned by the pupils. This is usually placed in the spelling or language course. The dictionary is used to verify the spelling, pronunciation, and use of words. Pupils should learn all of the specific uses which are found to be common in the language activities, such as finding words in alphabetical lists, using keys to get the pronunciations, selecting preferred spellings, and the like. Each important use will be developed through appropriate specific exercises, selected and graded according to the needs and capacities of the pupils. The beginning in alphabetical arrangement may well be made in the second or third grades. However, not until the fourth grade will much be done in using the dictionary for self-help in checking spellings and meanings. In the fifth and sixth

grades, the dictionary becomes the constant helper of the pupils in pronunciation and spelling.

Special exercises may be provided for the development of the spelling consciousness, that is, an awareness of correct and of incorrect spelling. Such a consciousness is important if the pupil is to check his own work and be sure of his spelling. Such an exercise is the following:

> Write a short composition on *an exciting experience* and before handing it to the teacher mark it thus: check every word you are sure is spelled correctly; put an *x* above every word you are sure is spelled incorrectly; and put a *D* above every word about which you are doubtful. Check your work with the aid of the teacher, or by referring to a dictionary. Did you always know whether you were right?

The tabulation of results to show the correctness of the pupils' judgment should be significant for the teacher and for the pupil as well. It should develop caution and throw some light upon the spelling problem in the individual case. Tests of this kind with children who have not been trained to judge their own work, have shown that children do not know with certainty when they misspell words. "Nearly four misspelled words in ten (38 per cent) were judged correct."[9] Remedial treatment in the way of developing a better consciousness of spelling is commonly needed. The occasional use of such exercises as that given above may serve this purpose. Such exercises can be begun in grade four and used throughout the remaining grades as needed.

Other special exercises, designed to accomplish specific purposes may be put into the course of study, or suggested to the teachers for use as needed. Such exercises are those designed to get speed and concentration in study, and simple language projects for motivating the work in spelling.

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[9] Tidyman, *op. cit.*, pp. 91*ff.*

5. *Exercises for developing habits of study and other special abilities.* The next main division of the course of study is provision for correlation and application. It may be questioned whether this is a legitimate part of the course in spelling, but spelling instruction must ultimately reach habits used in writing. The goals for spelling outlined above depend to a considerable extent upon the written language work of the school. All written language work of the school obviously affects spelling ability in every particular, strengthening or weakening bonds, but it is especially potent in affecting attitude, the spelling consciousness, and the spelling conscience.

The degree of care in spelling and the attitude toward correctness of spelling taken by those responsible for written work and the quality of work demanded of the pupil by responsible persons, largely determines the pupil's working attitude and standard. If carelessness is tolerated, slovenly spelling in written work follows, and tends to spread to the normal spelling work as well. The pupils lose a measure of the respect and interest which are necessary to hold themselves to a high grade of work. Guessing at words undermines the spelling consciousness and lowers the confidence and spelling morale of the pupil.

The conclusion is obvious. All spelling should be correct from the time the pupil begins written language through the university. To realize this aim, it is necessary to reduce largely the amount of writing done in the lower grades, and until they are able to use the dictionary to provide assistance for pupils in spelling new or difficult words; to insist upon correct spelling in all written work; to teach pupils how to check their work and to require them to check all written work for spelling before disposing of it, appealing to authority when in doubt; and to teach the pupils how and when to use the dictionary. Probably nothing short of consistent and united effort for correct-

ness of spelling by all teachers, will make possible the full realization of the results which we have undertaken to attain, no matter how well spelling as a separate subject may be taught.

The tendency to unify or closely correlate the language arts, and to tie up language closely with other subjects, such as nature study and the social sciences is promising. Close correlation is possible without a fundamental reorganization of traditional subjects. Probably there will be need always for some specific drill on the separate language arts. The full possibilities of this movement await further experimentation.

6. *Studies in the selection and organization of content.* In the discussion of the course of study above, very little attention was given to the consideration of investigations. A complete list and summary of investigations relating to the selection of spelling material, now numbering thirty-eight or more, is accessible in the *Third Yearbook* and the *Fourth Yearbook* of the Department of Superintendence. Some essential facts relating to twelve of the outstanding investigations are given below:

TABULATION OF INVESTIGATIONS

Investigator	Extent of Investigation	Source	Number of Words
Jones	15,000,000	Children's composition	4,532
Kansas City	?	Children's writing	1,926
Anderson	361,184	Adults' correspondence	3,125
Tidyman	538,000	Children's composition	3,800
New Orleans	2,500,000	Children's composition	3,037
Chancellor	?	Miscellaneous letters	1,000
Smith	75,000	Children's composition	1,125
Cook and O'Shea	?	Adult letters	3,200
Studley and Ware	200,000	Compilation	3,470
Ayres	200,000	Compilation	1,000
Boston lists	?	Children's writing	2,200
Horn	5,180,000	Adult writing	3,009

These investigations reveal with considerable accuracy the words occurring most frequently in the spontaneous writing of both children and adults. In addition we have the extensive investigation of Professor Thorndike [10] of the words occurring most frequently in the reading vocabulary. From these investigations, a reliable course of study in spelling may be constructed. The course-of-study maker should secure detailed reports of all investigations or a fair sampling of the investigations in each of the three fields, children's writing, adult writing, and reading lists. In combining the material from the three sources, it will be necessary for the course-of-study maker to decide upon the importance or weighting to be assigned to words in each of the three vocabularies. This will be done in accordance with the views of the function of spelling and of the proper source of spelling material, used by the person who is making the compilation. In addition, some consideration should be given to the reliability of the several investigations, as determined by the amount of material examined, the method of securing sample compositions, the method of tabulation, the accuracy of the work, and the like. The compiler should be on guard against results and conclusions that are not based upon substantial data and that are presented in such a way as to make verification by other investigators impossible.

The difficulty that the compiler will meet at once is that of trying to find agreement in the investigations as to the common words. Washburne made a comparative study of three investigations, Thorndike's, Anderson's, and Tidyman's, representing each of the three available sources of spelling material.[11] The percentage of words in each inves-

[10] E. L. Thorndike, *The Teachers Word Book* (Bureau of Publications, Teachers College, Columbia University).

[11] C. W. Washburne, "A Spelling Curriculum Based on Research," *Elementary School Journal*, Vol. 23, June, 1923, pp. 751-762.

tigation, not included in the other two investigations, is revealed in the following table:

PERCENTAGE OF AGREEMENT IN WORD LISTS

	Thorndike	Anderson	Tidyman
First thousand	1.6	30.0	20.0
Second thousand ...	20.0		
Third thousand ...	40.0	72.0	76.0

The results show practical agreement in regard to the first thousand words; about 75 per cent of the second thousand words are common to the three investigations and only about 25 per cent of the third thousand words are found in the three investigations. The difficulty of securing agreement on the common words rises rapidly as the size of the word list increases. Investigations show that it will not do to be arbitrary about words above the second thousand in frequency, and that further investigations are needed to establish the frequencies of the rarer words.

A more extensive comparative study of results obtained in the two fields, child and adult vocabularies, is reported by Dr. Breed.[12] He compared a composite of five childhood theme vocabularies with a composite of eleven adult correspondence vocabularies. He found a disparity of 40 per cent. An analysis of the two groups of words shows the following:

Words used by children only..... 2,437
Words used by adults only..... 4,459
Words common to the composite lists..... 4,598

[12] F. S. Breed, "The Words that Children Should Learn to Spell," *Fourth Yearbook* of the Department of Superintendence, pp. 133-135.

Dr. Breed states:

> The words used only by children reflected certain characteristic interests of children. The words of special application used by adults reflected similarly characteristic interests of adults. The words of general application in the adult-only list represented a power of abstraction and generalization beyond the mental level of the elementary-school child. In a word, the fundamental difference between these two lists of words was the difference in psychological maturity which they reflected.
>
> The difference in usage between children and adults was clear even in the list of words common to the two vocabularies. The correlation in frequency of usage was so imperfect that one could make no safe inference regarding the word needs of children from the frequency of adult use.

The explanation of "the disparity among the findings of investigators is due in considerable measure to variety in methods of investigation."

In his final compilation for his own purposes, Dr. Breed took mainly words common to both child and adult vocabularies (3,032), but chose also a few words of unusually high frequency in the usage of children (210), and a few that were used frequently by adults only (239).

In addition to investigations relating to the selecting of words there are many significant studies of the factors that relate to the organization of material in the course of study. Some of these have been noted in the discussion of the course of study above. Others will be found in the bibliography at the close of the chapter.

7. *Standards for the course of study.* The following list gives a good standard for a course of study:

1. A basal list of approximately 3,000 words, commonly used by children and adults in their ordinary writing. All commonly used forms of the words should be included.
2. Provision for supplementing basal lists with words peculiar to the locality.

3. Provision for supplementing basal and local lists with words peculiar to the spelling vocabulary of the individual pupil.
4. Placing words in grades where they are needed and used by the pupils, and where they present sufficient difficulty to require formal study. Until better information is obtained it will be satisfactory to place words in grades where they are spelled by 40 to 70 per cent of the pupils. Basal lists will bulk largely in the lower grades, and opportunities for building up individual word lists will be offered increasingly through the grades.
5. Words will be listed in columns, except for those often confused in meaning and use. The latter will be listed in phrases or sentences.
6. Words will be grouped in study lists according to common difficulties and use in language. List words may be divided into syllables.
7. Frequent review is desirable. Frequency varies with the difficulty of the words and the age of the pupils. Reviews every six weeks, eighteen weeks, and thirty-six weeks are satisfactory in the intermediate and grammar grades. In the primary grades, reviews will occur more frequently.
8. Review words will be studied in context or list, according as they do or do not present difficulty in meaning and use.
9. Emphasis in reviews will be placed upon hard words, and as far as practicable individual study lists will be prepared. The preliminary test will be used for this purpose.
10. The few rules and principles of spelling, of known utility, will be developed from the study and comparison of words in the intermediate grades.
11. Systematic exercises for the development of good study procedure for independent use, will be developed in the intermediate grades.
12. Other special exercises, such as using the dictionary, developing a spelling consciousness, and the like, will be provided as needed in Grade IV or above.

Methods of teaching. The major problems of method are threefold; first, the working out of a procedure in learning and teaching that is consistent with established facts

and principles of psychology; second, the adaptation of this plan to the conditions of effective learning in the several grades or departments of the school; and third, the working out of methods for diagnosing and treating individual spelling difficulties. This, in brief, is the plan of treatment that is followed in this section. Suggestions covering minor questions of method, such as conducting reviews, the treatment of errors, the use of games and contests, and the development of rules have been treated incidentally in other sections of the chapter, especially in the section on the course of study.

Spelling is mainly a matter of forming habits. The contributions of psychology to spelling are threefold: the general laws of learning, the principles of habit-formation, and the specific processes involved in learning to spell as revealed in the studies of the psychology of spelling. General laws of learning suggest that for maximum efficiency, the learning situation should be so manipulated that the pupils want to learn to spell, and, if possible, feel the need for learning the specific words that are to be taught; that sufficient repetition be provided to fix necessary associations; and that satisfaction attend correct spelling, and dissatisfaction attend incorrect spelling. The psychology of habit-formation tells us that the bonds should be formed as nearly as possible like those actually used in life; the pupil should get a clear image of the word; the pupil should deliberately reproduce the correct form of the word; and repetition should be continued to the point of automatic control. The analysis of the special processes involved in spelling gives us facts and principles relating to visualization, vocalization, the specific spelling bonds, and the like. Some of the contributions of the special psychology of spelling will appear as we go on with the discussion. At this point it is worth while to note the nature of the bonds involved. Leta S. Hollingworth's analysis of the

bonds involved in learning the spelling of a word is as follows:[13]

1. An object, act, quality, etc., is bound to a certain sound, which has often been repeated while the object is pointed at, the act performed, etc. In order that the bond may become definitely established, it is necessary (*a*) that the individual should be able to identify in consciousness the object, act, quality, etc., and (*b*) that he should be able to recollect the particular vocal sounds which have been associated therewith.
2. The sound (word) becomes bound with performance of the highly complex muscular act necessary for articulating it.
3. Certain printed or written symbols, arbitrarily chosen, visually representing sound combinations, become bound (*a*) with the recognized objects, acts, etc., and (*b*) with their vocal representatives (so that when these symbols are presented to sight, the word can be uttered by the perceiving individual). This is what we call the ability to read the word.
4. The separate symbols (letters) become associated with each other in the proper sequences, and have the effect of calling each other up to consciousness in the proper order. When this has taken place, we say that the individual can spell orally.
5. The child, by a slow, voluntary process, binds the visual perceptions of the separate letters with the muscular movements of hand, arm, and fingers, necessary to copy the word.
6. The child binds the representatives in consciousness of the visual symbols with the motor responses necessary to produce the written word spontaneously, at pleasure.

The psychology of spelling does not yield specific exercises for learning and teaching. From the facts and principles of psychology, the teacher constructs exercises and activities which are sound psychologically, and at the same time adapted to the maturity and experience of the pupils, and to the conditions of classroom use. The teacher is not

[13] Leta S. Hollingworth, *Psychology of Special Disability in Spelling* (Teachers College, Columbia University), pp. 79*ff*.

left entirely to her own resources in devising such exercises. Since 1895 a kind of educational research has been under way. This undertakes to evaluate typical classroom exercises, under typical classroom conditions. The method is known as experimental teaching, or experimental pedagogy. In the use of this method, the same careful technique is applied to problems of teaching in the classroom that is applied to problems in the psychological laboratory, and in other fields of science. From these classroom experiments, conducted by Lay, Lobsein, Fulton, Marique, Mead, Turner, Winch, Pearson, and a great many others, we learn that pronunciation plays an important part in the learning process; syllabication is an important aid in learning; in general, visual presentation is superior to auditory presentation; the loss in transfer is about 11 per cent of the words missed on the preliminary test; hearing, or the dictation of the order of letters, has little value as a separate exercise; and a combined form of presentation, including visual presentation, oral spelling, writing, and the like, gives the best results.

The results of the investigations of the psychology of spelling and experiments of classroom teaching provide a substantial foundation upon which to construct a method of teaching. Let us not assume, however, that every step in teaching spelling has been charted according to scientific facts. There are still many gaps, which we have to fill up as well as we can.

The analysis of the bonds involved in learning the spelling of new words as worked out by Hollingworth and others, and as reported above, outlines the essential steps in teaching and learning. The pupil is conscious of a meaning which he wishes to express; closely associated with the meaning in consciousness, is the vocal form of the word; the word is then pronounced by syllables and the letters of the syllables are visualized, successively, as they are

pronounced; visual perception is at once converted into a visual image, and the visual image is connected with motor or kinesthetic images as the word is spelled aloud or written. The crucial phases or steps in learning are, then, pronunciation, meaning, and use; visualization and pronunciation of the word by syllables; and oral and written spelling. In guiding the learning of children each of these steps needs the careful consideration of the teacher.

Pronunciation, meaning, and use are largely provided for in the prespelling experiences of the pupil. For many years before he begins to write, the child uses in conversation the common words of the language. The common words of speech become the written words when the child begins to write. In dealing with children familiar with the English language, the teacher need pay little attention to pronunciation, meaning, and use, in general. The exceptions are those words that are commonly misused or mispronounced. These words should be carefully noted by the teacher, and assistance given to children in their study, both as a means of improving the use of words and in teaching spelling. Such words as *athletic, chimney, get, going, particular, after,* and *separate* are examples of words that are mispronounced; and the mispronunciations are commonly causes of misspelling. Correct pronunciation should be emphasized in learning and teaching. The homonyms, *to* and *too, their* and *there,* and a few other words are either misused or used only in a limited number of meanings. Correct and varied meanings should be emphasized, by presenting the words in context or by some other useful device.

The first stage of the spelling cycle is primarily a language stage. Spelling proper, that is, learning the order of letters in words, begins with the second stage, getting a clear visual image of the word by syllables and the sound of the word by syllables. As aids in this step, the words

may be presented in syllables in the book or on the board, and the pupils required to pronounce the word carefully by syllables, visualizing the order of letters as they pronounce it. An important factor in visualization is emphasizing the parts of the words that present peculiar spelling difficulty. Lester[14] studied extensively the compositions of high-school pupils, listing 14,002 misspellings of 2,602 words. He found that out of a total of 10,853 type spellings of 775 words, 8,312 or 76.6 per cent, were due to a single false form in the case of each word. The difficult part is emphasized by underlining, comparing words having similar difficulties, picking out words in words, and by the use of mnemonic devices in dealing with a few words, such as *ear* in *hear, piece* of *pie, pal* and *principal.* Grouping words in lessons according to common difficulties makes comparison easier, and facilitates learning as shown in repeated experiments.

To translate the visual perception into visual imagery, trial recall is found to be effective. That is, immediately following the study of the visual form of the word, the pupils cover the word or avert their heads and try to *see* the word.

The final stage, oral spelling or written spelling, naturally follows. Both probably have some value, although writing is most important, inasmuch as it forms the final link in the associations that are actually used in writing. Oral spelling may be used with the whole class spelling in concert, or the individual pupil may spell aloud or to himself. Writing is provided by simply tracing the word with the finger or dull end of the pencil, or by writing the word in the usual way. The latter is quite practicable, and there is no reason why it should not be used extensively. Both

[14] Lester, "A Study of High-School Spelling Material," *Journal of Educational Psychology*, Vol. 13, Feb., 1922, pp. 65-74, and Mar., 1922, pp. 152-159.

oral and written spelling can be combined effectively. The pupil spells to himself as he writes.

This series of steps in learning will be best suited to the great majority of pupils, although some individual pupils may be found who may profit more by one kind of activity than by another. Individual differences in learning are hard to detect, and a safe method of procedure is to study the word in a variety of ways, as indicated above. When individual pupils determine positively that they can profit more by one type of procedure than another they should, by all means, be allowed to make the necessary adjustments in their methods of study.

This general procedure will be followed in spelling whether the work is directed by the teacher, or the pupils study independently. Whether class-directed study or individual study is used, depends upon the maturity of the pupils. It is probable that the class-directed study plan is the best one to use in grades two and three. In grade four and above, the work may well be organized on the individual basis.

In class-directed study in the primary grades, the teacher uses common word lists. The words are taken up, one at a time, following the method outlined above. The class study of each word separately is followed by individual practice in writing the word, with or without supervision. The work may be individualized to some extent, by giving preliminary tests, tests on words before they are studied, and by preparing for the pupils' individual study lists made up of words missed on the preliminary tests. The pupils should study correct forms. Preliminary tests give the teacher valuable information as to the difficult words, and in many cases show her the difficult parts of words, information that can be used to advantage in teaching, and that amply repays for the time and labor involved. The possible criticism of having pupils attempt the

spelling of unfamiliar words in the preliminary test may be met by having pupils write only the words that they know and are sure of spelling correctly. All other words require study. The superiority of the test-and-study plan has been shown in several experiments. Thus Keener [15] in a study involving 1,000 pupils, in Grades II to VIII, of the Chicago schools, reports results favorable to the test-and-study or individual method, with a considerable saving of time.

A typical plan for the organization of work in the primary grades is as follows:

Monday. The teacher and pupils look over the week's list, including the review exercises, pronouncing and using in oral sentences the words that present difficulty in pronunciation or use. The teacher dictates the list words and the review words or exercises. The teacher marks the papers, checking ($\surd$) words spelled correctly; and notices difficult words, particular difficulties, and extreme individual differences. The teacher adds words from written work to the list.

Tuesday. The teacher gives the marked papers back to the pupils. The pupils make lists of the words missed, or check the words in the book. The teacher selects three to five words for study. The words are presented according to the class-study method, described above. For seat work, the pupils write the words several times. Each pupil notes particularly the words that he missed on the preliminary test. The teacher then dictates the words. The children check the words spelled correctly.

Wednesday. Review of Tuesday's words. Each pupil concentrates on any words he may have missed on Tuesday's test. The class studies three to five new words as on Tuesday.

Thursday. Proceed as on Wednesday, completing the study of the new words.

Friday. Review the week's words, noticing hard words and particular spelling difficulties. The words are dictated. The teacher marks the papers, notices individual problems and words

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[15] E. E. Keener, "Comparison of the Group of Individual Methods of Teaching Spelling," *Journal of Educational Method*, Vol. 6, Sept., 1926, pp. 31*ff*.

needing further study, passes marked papers back to the pupils, and records class medians on the chart, as described below.

The use of the preliminary and final tests as noted above makes possible the keeping of class records, showing vividly to pupils the progress from week to week. The results of preliminary and final tests, in terms of grade medians, are charted on a simple graph on which percentages appear down the left-hand side of the sheet, and the weeks of the term across the top.

The program of work for the upper grades, Grade IV and above, is as follows:

Monday. Teacher and pupils look over the week's list, including the review exercises, pronouncing and using in sentences words that present difficulty in pronunciation or use. The teacher dictates the list words and the review words or exercises. They are marked. Each pupil makes a study list of the words missed, and adds to his study list the words misspelled on the preceding Friday test and common words misspelled in his written work.

Tuesday. Each pupil selects from three to five of the hardest words, and studies them according to the method suggested. The teacher supervises the work and results, and helps individual pupils. Pupils continue the study until all words can be written correctly from memory. The words are checked off as soon as they are learned.

Wednesday. The pupils write from memory the words studied on the preceding day, and mark them with the aid of the book to be sure that they are correct. They select from three to five additional words, and proceed as on Tuesday. Each pupil is excused from further study as soon as he learns all the words misspelled on the preliminary test.

Thursday. Proceed as on Wednesday, completing the study of the words in the lists.

Friday. Pupils look over the class and individual lists, noticing the hard words and their particular difficulties. The list words are dictated as on Monday, and each pupil writes from memory the words added to his list for individual study. The words are corrected. Each pupil figures and records his score on the test, as described above.

The method of individual study is as follows:

1. Select from three to five hard words for study, and begin the study of each word by pronouncing it and using it in a sentence, if there is any doubt about its meaning or use.
2. Pronounce and copy it by syllables.
3. Underline the hard part of the word, and compare it with a word having the same difficulty.
4. The pupils close their eyes and try to *see* the word.
5. Write the word from memory several times, spelling softly to themselves as they write.
6. After each word has been studied in this way, write the whole day's list from memory several times. The order of words should be varied in each repetition.
7. Write in sentences the word that presents difficulty in meaning or use.
8. Check off, on the study list, the words learned.

The method may be shortened and simplified if desired, without neglecting any essential phase of learning. As noted above, in the discussion of the course of study, the pupils should be taught the study procedure carefully and systematically when they begin individual study for the first time, and they should review it at the beginning of several succeeding grades. All pupils should become familiar with the method of study. Then, if any pupil discovers that he can add to the ease of his learning by the use of certain modifications in the methods, he should be encouraged to do so. The charts of progress will prove useful in stimulating interest, and pupils may make similar charts for recording their own individual scores from week to week.

A summary of the standards for the study and teaching of spelling follows:

1. Checking words likely to be confused in meaning and use.
2. Emphasizing correct pronunciation of words commonly mispronounced, especially mispronunciations leading to misspelling.
3. Study of individual words as follows:

(*a*) Pronunciation of the word, with emphasis upon pronunciation and visualization by syllables.
(*b*) Emphasis upon the difficult part of the word by underlining and comparing it with other words.
(*c*) Trial recall.
(*d*) Spelling aloud or while writing, or both.
(*e*) Checking for accuracy.

4. Rewriting lists studied several times, using in phrases or sentences, words commonly confused in meaning or use.
5. Emphasis upon words determined difficult in a preliminary test.
6. Final testing to check mastery and progress.
7. Keeping records of achievement and progress.

Diagnosing and treating problem cases. The working out of methods of diagnosing and treating problem cases is the third major problem of method. The psychology and pedagogy of spelling disability are still cloudy. The chief accomplishments so far are analyses of the bonds involved in spelling, the discovery of some of the causes and correlates of poor spelling, and results of the experimental treatment of a few problem cases. The chief contributors are Hollingworth,[16] Gates,[17] and Witty.[18] These pioneers have abandoned the earlier attempts at diagnosis by deducing the causes of misspelling from tabulations of spelling errors, and are devoting their efforts to an intensive study of a small number of cases, using careful observations and tests. They have put their theories to the test, and have measured improvement under carefully controlled conditions. The methods employed and results obtained promise much for the future. Any one having the time and inclination to go thoroughly into the subject, should examine the three articles referred to.

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[16] Leta S. Hollingworth, *op. cit.*

[17] A. I. Gates, *The Psychology of Reading and Spelling* (Teachers College, Columbia University).

[18] P. A. Witty, "Diagnosis and Treatment of Poor Spellers," *Journal of Educational Research*, Vol. 13, Jan., 1926, pp. 39*ff.*

That spelling disability is a real problem, is witnessed by classroom teachers everywhere, as well as by Hollingworth who estimates that 25 per cent of public-school pupils present special spelling problems. The value of suitable remedial measures is shown by results obtained in the experiments noted above. Marked improvement is shown in a surprisingly large number of cases. Hollingworth found among eighteen children in her special disability group only three whose disability seemed irremediable. This is 8 per cent of all pupils recognized as poor spellers, and 2 per cent of the total school enrollment.

Poor spelling, except in the few cases of permanent disability, is owing to preventable or remediable causes. The ambition of the teacher is to be able to apply a knowledge of the common causes of misspelling to a discovery of individual difficulties, and to be able to apply suitable remedial measures. Continuous study shows the complexity of the bonds which are involved in spelling. In any individual case a great many causes of varying degrees of potency may operate to produce the disability. To completely disentangle from this maze of influences those elements that are most potent is quite beyond the ordinary teacher. Trained psychologists resort to protracted testing, analyses, prospecting, and guessing, and finally in some cases throw up their hands in despair. Teachers, working without the assistance of trained psychologists, cannot expect to make complete and unerring diagnoses. Still, it is reasonable for them to expect to identify some of the main difficulties in individual cases, and to effect some improvements.

The teacher will have no difficulty in identifying the problem case. The pupil is normally intelligent; he does satisfactory work in most of the other subjects; he seems incapable of spelling correctly in the spelling class and in the usual written work; he seems to profit little from instruction; he dislikes spelling, and both he and the teacher

are thoroughly convinced that he is an incurably bad speller.

The first step in diagnosis is to discover whether misspelling is due to lapses or to ignorance of the word. The lapse is a chance or mechanical mistake, caused by the shifting of attention or by the temporary intrusion of some disturbing factor into the situation. The mistake is recognizable by the writer when he looks over his work. Normally, about 50 per cent of the errors in writing are errors of this sort. They may be discovered by having the pupil check a sample of written work, marking each word for correctness of spelling. Lapses do not present serious problems in the handling of the disability case, but habits of checking all written work should be formed to guard against the gradual undermining of the spelling consciousness, which contributes to lowered morale, and which is a source of real spelling errors ultimately. The errors that cause real concern are those that are due to ignorance. The pupil has a faulty perception of the word, or one or more of the essential bonds has not been perfected. The pupil does not recognize this type of spelling error. The material for diagnosis will consist largely of misspellings compiled from spelling papers and from ordinary written work. The compilation will include the words misspelled, and the number and frequency of each form of misspelling. The way in which the word is misspelled, and the consistency of misspelling are significant facts. Second, before going further with the diagnosis of spelling material the teacher should look for defects of eye and ear which might cause faulty perceptions of words. A significant number of poor spellers are found to be deficient in some sense organ. Third, measure as accurately as possible the pupil's intelligence. Conceivably, there is a limit of intelligence below which a child cannot fall and hope to succeed in spelling. Some poor spellers may be found who have so

little general mental ability that ordinary school work is beyond them. The typical problem case in spelling, however, is a pupil of fair intelligence. A fourth rather obvious group of causes of misspelling is pronunciation and articulation, and confusion from using a foreign language. If these factors are operative, effects can be detected in the pupil's misspelling. There is a natural tendency to spell as one speaks. A fifth factor is comprehension of meaning, or reading. Hollingworth found a significant relation between knowledge of meaning and spelling difficulty. Gates found that poor readers are frequently poor spellers, although the obverse may not hold. Meaning is one of the essential bonds in spelling. Knowledge of reading ability is determined best by the use of standard tests. Sixth, inappropriate phonic or phonetic training may be responsible for failure to differentiate syllables, or faulty perception of letters and common sound units. Seventh, imperfect visual perception of words seems to be accountable for a large number of mistakes that cannot be traced to one of the other causes. Eighth, disinclination and emotional or nervous instability are factors which contribute more or less to the total disability in many cases. Ninth, lack of motor coördination, especially in poor writing, explains difficulty with spelling in certain cases.

The causes operating in a particular case will be found in an analysis of misspellings, and to some extent in the habits, attitudes, and temperament of the pupil.

The discovery of the important causes of disability will usually suggest appropriate remedial measures to the teacher. Poor spelling is due to incorrect or underformed bonds. Diagnosis through close observation of the pupil and his specific spelling responses, reveals the weakness, and remedial instruction strengthens the bonds which are found to be weak, by providing special practice. Remedial measures usually take the form of intensive drill exercises.

The correction of faulty attitudes takes place incidentally, with the pupil's increasing success in spelling. It is helpful to the teacher in devising corrective exercises to know that poor spellers learn in precisely the same manner as good spellers. The difference is one of emphasis. Poor spellers require more drill, and intensive drill on the bonds that are especially weak. Thus, in treating a case of "inadequate attention to syllables," Witty used "careful drill upon hearing, pronouncing, visualizing, and spelling all words in syllabic rhythms." Also, for failure to spell common sound units, he prescribes phonic drills, practice in collecting possible ways of spelling some of the common English syllables.

The following is a summary of procedure in diagnosing and treating problem cases in spelling:

1. Give a standard spelling test to discover the amount of deficiency. Compare with achievement in other subjects.
2. Give an intelligence test to discover general mental capacity.
3. Test for defects of hearing and vision.
4. Give reading test.
5. Give test of spelling consciousness, as suggested on page 18, to show whether mistakes are due to carelessness or ignorance of the word.
6. Collect misspellings from spelling tests and written work, and classify them according to types of errors.
7. Get as much information as possible about the pupil's pedagogical history, especially methods of beginning reading; knowledge of meanings of words; knowledge of phonics; pronunciation and articulation; motor coördination in writing; and emotional attitude toward spelling.
8. From above, assemble probable causes of difficulty in spelling, and adopt appropriate remedial measures, such as the following:
   (*a*) Systematic word study. Early training may have been inadequate.
   (*b*) Exercises in visualization.
   (*c*) Drill upon particular types of spelling errors.
   (*d*) Phonics drills.

(*e*) Removal of physical defects.
(*f*) Develop confidence through successful effort.

Equipment for teaching. The equipment that is useful in the teaching of spelling is relatively simple. Textbooks and notebooks suffice, except for a few charts and record sheets that the teacher may make easily, as they are needed. There is a question in the minds of some thoughtful teachers about the necessity of textbooks. These teachers feel that word lists compiled by the teacher or local course-of-study committee are satisfactory substitutes for the textbook. The author feels decidedly that this is a mistake. The construction of a modern textbook in spelling involves a tremendous amount of research in the selection of words, grading words, grouping words, arranging reviews, and the like, which can be performed only by a person with a great deal of time to give to the subject. Teachers or school officers who are giving their major time to other things, and who probably have had no special training for the work, cannot be expected to do a thorough job. Many of the necessary phases of the work are slighted or overlooked entirely. There is a possibility that a teacher who constructs her own course, will include the words used locally and will emphasize the words misspelled by the pupils in their written work. There is also a possible gain in motivation by taking spelling material directly from the language activities and needs of pupils. But there is a considerable probability that words of little value will be included in the course, and that the many factors mentioned above will not receive sufficient care. The modern textbook, wisely used, utilizes extensive researches in all phases of spelling as well as the experiences of many good teachers. It also provides for adaptation to local conditions and needs. In the matter of economy, the cost of notebooks incident to the use of word lists may easily equal or exceed the cost of having a spelling book in the hands of each pupil.

There is no absolute standard for the selection of textbooks. Any attempt to draw up a list of desirable qualities and to weigh each quality, will include a large element of personal opinion and bias. The best plan to pursue is to draw up one's own score sheet after examining as extensively as possible the contributions of research in the field and the opinions of those who have made a special study of spelling. Some studies of the content of spellers have been made, such as that of Woody; other investigations, such as Washburne's, have included comparative studies of several word lists; and a few attempts at drawing up score cards, such as Glover's Spelling Book Score-Card, have been made. References to these and other studies are given at the end of the chapter. These will prove suggestive, although it is likely that no one of them will quite satisfy.

Through the preceding sections, particularly the section on the course of study, the author has exposed, by implication at least, his ideas on the essential features of a spelling textbook. These may be summarized at this point:

1. A basal vocabulary of 3,000 to 4,000 words, including modified forms, phrases, contractions, abbreviations, and the like, occurring most frequently in eleven or more extensive and trustworthy investigations of the writing vocabularies of children and adults.
2. Provision for supplementing basal lists with words of local use only, and with words frequently misspelled by pupils of the grade, in their written work.
3. Placing words in grades where they are used by pupils in their written language activities, and are sufficiently difficult to require special study.
4. Listing words in columns, with homonyms and other confusing words presented in context.
5. Grouping words first, according to common difficulties, where possible; and second, according to natural language relations. Attention to phonics in the beginning work.
6. Organization of work in large units, preferably by weeks.

7. Definite plans for the organization of instruction, providing for directed class work in the lower grades, and for supervised study in the upper grades.
8. Individualization of instruction through the use of the test-and-study principle.
9. Provision for periodical reviews of all words, at four to six weeks, semiannual, and annual intervals; and listing of difficult words for special review.
10. Reviews in context, of words confused in meaning and use.
11. Graded exercises in studying, using the dictionary, and developing useful rules and principles of spelling.
12. Special exercises and activities for developing spelling consciousness, concentration, and economy of effort in learning, interest, and application.
13. Tests, records, and standards of achievement.
14. Definite objectives for the several grades.
15. Simple, concrete directions to teachers.

A final word may be said about the use of printed notebooks. These are designed for use in connection with the test-and-study plan of teaching, and they provide blank spaces for copying in study lists and for checking results of tests, repeated at intervals. Each pupil thus builds up his own original study list and review list. Much can be said in favor of having a systematic plan for checking results in learning spelling, and in having these results in relatively permanent form for use throughout the school year.

The measurement of the results of teaching. The use of spelling scales to measure the achievement of pupils and to compare grades and schools has become quite general now. The Ayres Scale and the Buckingham Extension of the Ayres Scale have proved to be simple and practical instruments of measurement. Monroe in his timed-sentence tests introduced a new element into measurement, that of speed in taking the test. The giving of the timed-sentence tests is decidedly more cumbersome than the common plan,

and Morton[19] concluded from a comparative study of timed-sentence and column tests, that the additional time required to give the former does not pay. The correlations between the two tests varied from .83 to .89, whereas the correlation between two column tests was .89.

The Iowa Spelling Scale and the more recent Youngstown Spelling Scale, prepared by Henrietta V. Race, offer larger lists from which to choose material.

The extreme variations in individual scores on successive tests make the use of these tests very unreliable for measuring individual achievement or improvement. With whole grades the results are less uncertain, and the reliability of the results increases considerably as the size of the group increases.[20] However, we are warned against overconfidence in grade measurements by the conclusions of Dr. Hollingworth who, comparing the gains of a noninstruction group with an instruction group, found that the noninstruction group made as great progress as the instruction group, when measured by the Ayres Scale.[21] Morton also found, in testing 2,863 sixth-grade pupils in twenty-two Ohio cities, with two tests of equal difficulty, taken from the Ayres Scale, that the mean score on test A was 62.4, and 58.0 on test C. "The difference, 4.4, is greater than one-fourth of a year's progress." Possible extremes of unreliability are shown in two lists of ten words each. The mean score on one list was 45 per cent; on the other, 70.5 per cent; a difference of 25.5 per cent.[22]

The explanation of these variable and uncertain results may be due to differences in giving the test, and the lati-

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19 R. L. Morton, "Validity of Timed Sentence and Column Tests," *Journal of Educational Research*, Vol. 5, May, 1922, pp. 444*ff*.

20 *See* E. J. Ashbaugh, "Variability of Children in Spelling," *School and Society*, Vol. 9, Jan. 18, 1919, pp. 93-98.

21 *See* Leta S. Hollingworth, *op. cit.*, p. 63.

22 R. L. Morton, "The Unreliability of Measurements in Spelling," *Journal of Educational Method*, April, 1924, pp. 321*ff*.

tude for variation is almost unlimited because of the vagueness of the instructions for giving the test. But it is also quite likely that the variability of results is due, in considerable part, to differences in the courses of study. The author made a study of the grading of the twenty words in columns M and R of the Ayres Scale, in five common spellers. He found, for example, *trust* in Grades II, IV, V, VI; *extra* in Grades IV, V, VI, VII; and *sight* in Grades II, III, IV, V, VI. Of the 40 words

1 word was listed in 5 different grades
16 words were listed in 4 different grades
9 words were listed in 3 different grades
14 words were listed in 2 different grades

It is obviously difficult to compare the achievement of grades and schools when the same words are assigned to from two to five different grades. Dr. Hollingworth concluded from her attempt to use the Ayres Scale to measure the relative improvement of two classes, that the ability to spell certain words is a specific, not a general, result of spelling, and that the improvement of the class could be measured only by determining the amount of improvement in the ability to spell the words studied.

This latter consideration has led to the adoption of a new kind of spelling test, one based upon a particular course of study and designed to measure improvement in ability to spell a particular list of words. Such a test is the Tidyman Standard Spelling Test, planned to accompany the *Supervised Study Speller*. Tests are provided for each year or half-year of the course, and consist of a random sampling of the words assigned to the grade. The tests are given at the beginning and end of the term's work, and results are standardized in terms of initial achievement, final achievement, and improvement. Thus the teacher or supervisor is enabled to determine specifically the results of instruction in a particular grade, for a particular term.

These tests are a valuable supplement to the more flexible survey tests of the Ayres type.

For ease in interpretation, and for combining results in several tests, the norms for spelling tests should be standardized in terms of age as well as grade.

Detecting and strengthening weaknesses. The first task of supervision, the discovery of weaknesses, will be aided and simplified by the use of check lists of standard provisions and procedures. Such lists have been provided for the course of study on pages 106-107, methods of study and teaching on pages 116-117, procedures in diagnosing and treating problem cases on page 121, and textbooks on pages 123-124. Also, such questions as the length, number, and distribution of spelling periods; and the placement of spelling on the program of recitations may be considered.

Probably the most helpful supervisory device to use in case there is a marked weakness in the teaching of spelling in the school is to have teachers enter coöperatively into drawing up such a list of standards as is suggested above. The coöperation of the teachers will insure interest in the enterprise, and the individual study and group discussions incident to the work will contribute to clear ideas of what is to be done. Concrete evidence, such as results on standard tests, or marked discrepancies of procedure, or noticeable deficiencies in vocabulary, may serve to launch the study.

In case doubt about the adequacy of the word list arises, induced by the presence of unusual words or poorly graded words, it will be well to make a check of the entire list by comparing it with a compilation of studies of the writing vocabularies of adults and of children, and possibly of reading vocabularies. Several studies of each kind of vocabulary should be included in the composite check list. These might include the Commonwealth list as reported in the *Fourth Yearbook,* the Jones, Tidyman, and Kansas City

lists of children's words, and the Thorndike Reading List. The object should be to eliminate the unusual words, and to add commonly used words that may have been omitted. Other defects of the course of study become obvious when standards for the selection and organization of material such as are suggested above, are applied; and remedial measures become apparent when the deficiencies are located.

Checking the methods of teaching by accepted standards will locate deficiencies in instruction, such as wasting time in group work when individuals vary greatly in ability; failure to provide for the vivid visualization of the words; failure to provide for writing the words; use of wrong or questionable methods of study or teaching, such as writing in the air; and the like. Facts of experimental study or opinion of authorities in the field may be cited to get correct procedure. If this does not suffice, demonstrations of correct practice may be given. The working out of explicit details of a program of instruction may serve best with teachers who have little imagination or initiative. For other teachers, rather wide latitude may be allowed as long as provision is made for essential phases of learning. Keeping accurate records of achievement and progress will stimulate interest and will make teachers sensitive to suggestions from the supervisor as to ways of improving technique. Carrying out simple, definite experiments along lines of accepted procedure for scientific investigations, will help to stimulate interest, and will help to establish the superiority of improved methods.

The cycle of supervisory activities includes, then, establishing the fact of unsatisfactory results; locating the cause in the course of study and method of teaching; modifying procedures to correspond with standards of correct practice, or conduct well controlled experiments; and measure results. All of these are carried out with as much teacher activity as possible.

Keeping up with the literature of spelling teaching. There are now available several fairly recent and comprehensive accounts of the work that has been done in spelling. A brief summary of important principles has been given by Horn in the *Eighteenth Yearbook* of the National Society for the Study of Education, Part II, Chapter III. A more detailed account is given in the author's *The Teaching of Spelling*. The most important recent contributions are summarized in the *Third Yearbook* and the *Fourth Yearbook* of the Department of Superintendence. These accounts deal with the course of study in spelling. Important contributions appear from time to time in a number of educational journals, especially the *Journal of Educational Research, Elementary School Journal, Journal of Educational Method,* and *School and Society*. Detailed references are made at the end of the chapter to the chief sources of material.

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CHAPTER IV

THE SUPERVISION OF READING

BY LAURA ZIRBES

Associate Professor of Education, Ohio State University

The challenge to supervision in reading. In no subject or field have investigations been so numerous as in the field of reading. Many of the conclusions of experiment and inquiry are of fundamental significance and point unmistakably to the need for a thoroughgoing reconstruction of current practice in the teaching of reading. The major function of the supervisor in this field is to bring the results of investigation to bear on current practice in reading in a manner that will lead to the improvement of teaching and the fuller attainment of desirable reading aims.

The present reading situation is therefore a challenge to constructive supervision. Fundamental bases for the improvement of teaching have been scientifically established and widely recognized. Consequently, there is an open-minded attitude toward change which is favorable to constructive supervision. Progressive situations are experimenting with new materials; publishers are seeking professional leadership in the preparation of new types of material; teachers in increasing numbers are recognizing the need for guidance and professional study as a basis for progressive work in reading; current practice is becoming increasingly critical of its processes and ready for supervisory guidance which will not only cope with its shortcomings but help it to find itself.

The prerequisites of supervisory service in reading. In order to render qualified service in the reconstruction and improvement of reading, the supervisor must have (*a*) a working familiarity with the scientific literature which has been so instrumental in initiating progressive movements in reading, (*b*) an intimate first-hand knowledge of the classroom practices and conditions in his own schools, and (*c*) a realization of the acceptable ways and means of securing coöperative effort of teachers and bringing current practice into line with progressive trends.

The first of these prerequisites means a scientific professional preparation for work in this field; the second calls for adequate knowledge of local conditions and objective data on local needs; the third involves tact and insight in formulating a supervisory program in reading and putting it into effect. These three prerequisites are so essential to successful supervisory service that they deserve further emphasis and clarification. They not only indicate the supervisor's threefold preparedness for her work, but also the lines along which the supervisor must continue to grow while in service.

During the past ten years the professional literature in which these findings and recommendations have been incorporated has come to the notice of a growing percentage of teachers in training and service through the agency of reading circles, extension courses, summer schools, professional periodicals, and meetings. This has been responsible for an increased concern about the effectiveness of prevailing practice. Meanwhile, reading tests and surveys have also heightened professional interest in the subject and provided a spur to progress.

Investigations have also been responsible for the radical revision of classroom procedures in reading. The traditional reading recitation is now giving way to a variety of reading activities, all of which put major stress on in-

telligent interpretation and train the reader to make the essential adjustment of reading rate and procedure to the material and purpose in hand. The whole wide range of social uses of reading is drawn upon to orient pupils in the varied types of reading activity for which they will find use in the school and in the pursuit of outside interests. The discovery of the fact that different purposes of reading are accompanied by the use of different reading procedures has emphasized the need for abundant and carefully guided practice in many types of purposeful reading. The laboratory studies of eye movement have indicated the nature of maturing habits and not only demonstrated the evil effects of premature or undue emphasis on the recognition of words in isolation but have suggested the components of more economical methods.

Diagnostic and remedial cases have not only indicated causes of failure and difficulty but have revealed the significance of desirable attitudes and meaningful approaches to reading for beginners and the need for provision for individual differences.

Professional literature in the field of reading. The literature in the field of reading with which a supervisor should be familiar, consists of (1) an ever increasing list of original investigations and experimental studies—the primary sources from which the reconstruction of current practice has received its major impetus and direction; (2) a series of critical summaries and interpretations of the findings of investigations, prepared by those who have not only specialized in the field of reading, but who have also realized that the inaccessibility of primary sources retards and hampers their use in the improvement of reading; (3) texts on reading intended for professional study by teachers in training and in service, and articles in current educational periodicals which have been written for the express purpose of improving the teaching of reading; (4) the in-

creasing output of progressive publishers who are endeavoring to apply the recommendations of reading experts in the preparation of elementary-school readers and other materials of reading; (5) the instruments used for judging the effectiveness of teaching; tests and scales for the measurement and appraisal of reading attainment; (6) selected courses of study in which progressive trends in reading are reflected.

The outlines of a progressive supervisory program in reading could hardly be conceived without recourse to the six types of material which make up the special literature of the field. Further, there is a constant stream of new studies which indicate the need for further study and contact with such sources on the part of the supervisor.

Information on the local status of reading. But no body of published literature can give the supervisor the essential fund of information about the status of reading in his own situation, and no supervisory program can be expected to take hold in a situation unless it is conceived in terms of local needs and local conditions. It is therefore incumbent upon the supervisor to utilize every reasonable means of studying reading in her local situation.

Some plan of continuous survey should therefore supplement classroom visitation if the supervisory program is to serve local needs and secure the essential measure of local support. The continuous self-survey should yield objective data on reading attainment along various lines. For this purpose standard tests are particularly significant but they should be supplemented by records and measures which, though less objective, reveal the more or less intangible broader outcomes of instruction with which progressive practice is so vitally concerned.

Such questions as the following have a very definite bearing on the problems of supervision and on the nature of a supervisory program in reading in any situation.

Local conditions which supervision must consider. The following will help in the consideration of local conditions:

1. What is the policy with reference to the age of school entrance and of initial emphasis on reading?
2. What are the conditions of promotion in the first grade? In subsequent grades?
3. What is the policy with reference to classification of pupils?
4. How do the various buildings or districts differ with respect to nationality, race, library facilities, social background, and home conditions?
5. What is the practice with reference to the supply of textbooks, budgets for supplies, and supplementary materials?
6. What are the reading materials or equipment on hand in the various schools and classrooms?
7. What is the general attitude of the community, the teacher, the principals, toward changes of policy or procedure?
8. What is the teacher turnover and the source of teacher supply?
9. What does the system offer as means of or incentives for professional advancement?
10. What are the current conceptions of the aims of reading?
11. What are the prevailing practices in the teaching of reading in the various grades or levels?
12. Where is particularly effective work in reading to be found in the system?
13. What are the most common or most urgent needs in the light of progressive standards?
14. What general supervisory service would be most immediately helpful and productive of favorable attitudes toward the improvement of reading?
15. What is the teacher's present source of guidance in reading? (A manual, a course of study, her professional preservice training, her principal's suggestions, her own teaching experience, recent courses, readings, supervisory bulletins or suggestions.)
16. What are the facts as to time allotment, size of classes, division of time for reading, average amounts read, provision for individual differences?

17. What is the relation of reading to the other subjects or activities in the classroom and in the local supervisory scheme?

Supervision which registers its effects on the improvement of reading in any local situation, takes local conditions and needs into account in applying the findings of investigation. This is the first essential of supervisory service which not only aims to be soundly progressive but tactful, coöperative, and constructive.

The supervisor's need for vision. While preceding sections have indicated the supervisor's need for acquaintance with the various types of professional literature in the field of reading and stressed the importance of an analytical study of local needs and conditions, it remains for this section to stress one other qualification for successful supervisory service in reading. This qualification is implicit in the word *super vision.* Supervision is at its best when it proceeds from a clear conception of things as they are, to the use of preferred ways and means of initiating and establishing desirable changes.

Practical insight into the problems of the classroom, and a sympathetic understanding of the teacher's attitudes and needs will prevent much wasted effort and guide the supervisor in the organization of supervisory plans and procedures. Such insight involves a clear sense of relative values, a balanced point of view, an open-minded consideration of the whole array of factors in the reading situation, and the conscious utilization of every positive influence. Supervisory insight comprehends sensitiveness to the psychological factors which make or mar a learning situation in reading, the ability to use the concrete classroom situation as raw material in the interpretation of progressive theories and principles of procedure. Such insight not only begets confidence but creates the professional attitude favorable to expert service in supervision.

Supervisory service of this sort is bound to be democratic, enlisting the coöperative participation of teachers in the evaluation and progressive reconstruction of their reading aims, procedures, and standards. Notwithstanding the urgent need for reconstruction, the supervisor cannot presume to initiate a program of radical change nor institute new practices single-handed, but serves to the extent of her capacity as a leader, an expert consultant and collaborator, but always in the democratic spirit which respects every coworker's contribution, building up the morale of the teaching force by showing obvious concern for human values and readiness to serve a common cause.

The general supervisor will often find that this means committee work in which the ablest teachers of each grade share her leadership by working on some special reading problem and putting the results of their work at the disposal of all. A fuller discussion of the technique of this type of supervisory activity will be found in a later section of this chapter.

Matters of supervisory concern. The supervision of reading will concern itself with (*a*) desirable reading aims and objectives. (*b*) It will also be concerned with the development of a course of study which is in harmony with these aims. (*c*) Supervision will also encourage and promote methods and procedures which are in accord with progressive trends. (*d*) It will interest itself in the provision of reading material of sufficient quality, variety, and quantity to serve the needs of the modern reading program. (*e*) Supervision will also be concerned with the measurement and evaluation of reading progress and attainment. (*f*) It will also concern itself with the problems which relate to remedial cases. These matters are the content of supervisory concern in the field of reading, and the matters to receive consideration in any supervisory program.

These six topics which enter into and combine in every

supervisory program in reading are here given consecutive and separate consideration prior to the discussion of supervisory programs in which they are found in various combinations.

Reading aims and objectives. A characteristically progressive reading program is one which is conceived as a means to the attainment of a broad range of desirable aims and objectives.

Investigation reveals the need for a thoroughgoing revision of the aims of reading. Gray's Summary of Investigations Relating to Reading[1] is ample evidence of the wealth of scientific literature in this field. The basis and scope of current reforms in reading,[2] and the changing conceptions of the aims of instruction in reading are attributed by him to studies which have not only revealed the wide variety of uses of reading in the life of the modern child and adult but have also shown the inadequacy of traditional methods and materials for the development of a sufficiently wide range of habits of intelligent interpretation.

Courses of study in use twenty years ago show clearly that the aims of reading were narrow. The three aims which dominated the teaching of reading at that time and until recently are here stated in the order of their emphasis and attainment:

TRADITIONAL READING AIMS

1. Thorough mastery of the mechanics of reading
2. The development of habits of good oral reading
3. The cultivation of appreciation of literature

[1] William S. Gray, *Summary of Investigations Relating to Reading*, Supplementary Monograph No. 28, University of Chicago, 1925.

[2] William S. Gray, "Keynotes to Modern Reforms in the Teaching of Reading," *Improvement in the Teaching of Reading*, Supplement to the Course of Study in Reading, Elementary and Secondary Grades, Bureau of Research Monograph No. 1, Department of Education, City of Baltimore, 1926, pp. 5-7.

In the last ten years the scope of instruction has been widened and a broader range of reading aims has been recommended in professional yearbooks, courses of study, and professional texts on reading. The materials of instruction prepared by progressive publishers show the influence of these recommendations. The primary emphasis on the mechanics of oral reading has yielded to emphasis on meaning and a definite recognition of the numerous values of silent reading. Reading is no longer conceived as a mere skill but rather as a means of extending the experience of boys and girls, of stimulating their thinking powers and providing them with means of satisfying and broadening their interests. In contrast to the statement of narrow traditional aims we find an expression of modern trends in a yearbook [3] which has made significant contributions to reconstruction in reading by formulating suggestions for applying the findings of research to elementary-school practice.

The change of emphasis is also obvious in the order of the following statements of broader aims from this source.

THE THREE MAJOR OBJECTIVES OF READING

1. Rich and varied experience through reading
2. Strong motives for and permanent interests in reading
3. Desirable attitudes and economical and effective habits and skills

By reducing the statement of major objectives to three, the committee has made it possible to organize subordinate minor objectives with reference to their contribution to these three inclusive statements. The first calls for a wisely chosen variety of reading matter and provision for a far more extensive reading experience than had hereto-

[3] *Twenty-fourth Yearbook*, National Society for the Study of Education, Report of the National Reading Committee, Part I (Public School Publishing Co., 1925).

fore been considered adequate. It not only emphasizes the contribution of wide reading as a means of vicarious experience in the great fields of human interest, through books on history, biography, exploration, discovery, invention, travel, science, and art, but also stresses the contribution of wide reading to the development of power to interpret effectively. The traditional program put far too much faith in instruction, limiting children to the mastery of a few selections. "We learn to read by reading." Thus, this one aim calls for a significant amount of material for easy, interesting, informative sight reading.

The second aim indicates the futility of teaching which does not develop tendencies that carry over into life outside the school. It implies the need for purposeful reading and the necessity for providing for individual differences in interest and ability.

The third statement is misinterpreted when its three component elements, attitudes, habits, and skills are stressed separately. The committee emphasizes at length in its report [4] the fact that attitudes, habits, and skills enter into various combinations in the purposeful reading of any material and that they must be developed simultaneously if the reader is to learn how to adapt his procedure to the particular interest and material in hand. This point of view gives a large place to reading activities in which the reader is guided through a shifting sequence of purposes suggested by the nature of the material and the situation in which it is used.

This aim also includes reference to desirable training when in the course of purposeful reading some step in the process causes difficulty which reveals a need for definite training.

The relation of specific objectives to the three essential aims or major objectives. If normally purposeful reading

[4] *Ibid.*, pp. 16-17.

activities when analyzed are composed of a series of specific skills, habits, and attitudes, it follows that these can be listed and that some of them are common to a large number of reading situations. It also follows that certain more or less artificial training situations may be set up to give particular emphasis to some one specific objective, and this is sometimes desirable, especially in cases where the lack of a specific ability interferes with the successful interpretation. However, these specific abilities are so numerous, and formal training carries with it so much subsequent necessity for reincorporating the specific into normal reading situations to ensure carry-over, that it is economical to capitalize normal reading situations by developing possibilities for natural sequences of reading purposes to the full, thus reducing training considerably and facilitating the attainment of the first two major or essential objectives without sacrificing the third. Furthermore, in dealing with teachers and pupils it is psychologically more effective to refer to reader's purposes than to objectives, because the reader's purposes are the more immediate and frequently employed means to the attainment of reading objectives.

Because of this, it may well be wiser to show teachers how skillful guidance gets purposeful reading under way with a variety of selections and to help them to see how many reader's purposes are in typical reading situations, instead of leading teachers to infer that in good teaching of reading a lesson is always concerned with some single specific objective.

A list of specific objectives may still be of considerable value as a check list, just as a list of food values or elements may be of use even though it is feasible under most circumstances to choose a variety of natural foods each of which contains a number of needed elements in combination and in appetizing form.

This conception of the function of purposes in the attainment of objectives has an obvious and significant bearing on methods of teaching which is developed in a subsequent section.

At this point it is perhaps appropriate to distinguish between reading aims, objectives, and purposes, by listing a few of each. As commonly used, a reading objective is a goal or phase of attainment, as, for example:

General objectives. An abiding interest in reading or ability to interpret effectively.

Specific objectives. Ability to see more than one word at a glance. Positive attitude toward reading matter in the school environment. (Lists of specific objectives frequently consist chiefly of abilities, that is, skills and habits, failing to include due reference to attitudes either in connection with habits and skills, or separately.)

Aims. They are commonly used in connection with discussions of reading purposes, and are in a sense *teachers'* or *learners'* purposes rather than *readers'* purposes. They may be general or specific.

General Aims. They are used to develop a slight vocabulary of frequently recurring words through reading activities that utilize contextual material. To cultivate a thoughtful attitude and stimulate or establish the habit of thinking about what is read.

Specific Aims. They provide practice in skimming, develop appreciation for a given poem, and demonstrate the value of the dictionary as an aid to pronunciation.

A reader's purposes (a sequence).

1. To find a good Christmas story. (This purpose leads to the use of the table of contents in one or more books or to the use of a card index.)
2. To find a given story in a book.
3. To decide on the suitability of the story for use in a Christmas program. (This purpose may lead to rapid, individual, silent, evaluative reading in which a number of points may be considered, namely, length, interest, possibilities for dramatization or illustration in a movie, number of characters involved, suitability with reference to some general scheme or plan, as, for example, a program about Christmas

customs, comparative suitability with reference to some other story.)

4. To decide on certain matters involved in a story to a class or a report to a committee. (This purpose involves rereading of parts of the selected story with skimming to locate them. It also involves the mental or written organization of information concerning the story into an oral or written report.)
5. To decide which parts could be briefly told and which might better be read verbatim.
6. To try the story out on a small audience to see how long it would take as planned, to get a judgment of its suitability for a larger audience, and to get suggestions to improve the plan or the reading.
7. To apply suggestions in further preparation.
8. To entertain an audience with a carefully prepared Christmas story.

Stages of reading growth. The *essential* aims of reading cannot be discussed without reference to the five important periods into which growth stages characteristic of normal reading progress. The essential aims to be emphasized in each stage or period are stated below.

Aims of the period of preparation for reading or the period in which readiness for reading is developed. This list gives the most important aims for the period of preparation:

1. To provide wide first-hand experience as a background of meanings and a stock of ideas to aid interpretation.
2. To give children contacts with stories, poems, and other reading matter which they can interpret from another's reading before they can read themselves.
3. To encourage the discussion and interpretation of experiences and stories and pictures and the use of ideas in expressional activities.
4. To lead pupils to see the uses and values of reading on their own immediate level and in their own environment, and thus to develop readiness for instruction in reading and arouse true effort.

5. To take account of individual differences in maturity, interest, and ability.

Aims of the period of initial instruction. The following give the aims for the period of initial instruction:

1. To relate reading to the child's experience.
2. To introduce children to reading as primarily a thought-getting process.
3. To stimulate keen interest in reading activities.
4. To provide guidance that subordinates mechanics to meaning from the very start and facilitates desirable progress in learning with normal strain.
5. To develop a sight vocabulary of recurrent words as an incidental outcome of meaningful reading experiences, with easy contextual material in which the vocabulary has been sufficiently well controlled to facilitate this aim without reducing the interest.
6. To lay a sound foundation for subsequent growth in desirable fundamental habits, and develop a readiness for more training which makes for independence with very easy materials.
7. To provide for varying rates of progress through this period.

Aims of the period of rapid growth in fundamental attitudes, habits, and skills. The following are the aims for the period of rapid growth for the second and third grades:

1. To enrich and extend experience through activities in which reading plays a significant part.
2. To cultivate keen interest in a variety of worth while reading materials, including the world's best stories.
3. To facilitate the habit of independent silent and oral reading in which much of the material is of the individual's own choice.
4. To build backgrounds for study by providing contacts with easy but interesting factual material and motives for reading, using such materials purposefully and selectively.
5. To study progress in the development of suitable attitudes, fundamental habits and skills, and serve individual needs as these become evident.

6. To introduce children to the library (class, school, and public) and initiate such uses of it as may be served under local circumstances.

Aims of the period of wide reading to extend and enrich experience and to cultivate the habits and attitudes involved in representative types of reading and study activities. The following are the aims for the period of wide reading for the intermediate grades:

1. To extend and enrich experience bountifully through opportunities for choosing material in practically every major field of human interest and endeavor in which suitable content can be found in the school, the library, and the home.
2. To establish suitable habits and attitudes toward current reading matter of everyday life.
3. To foster independence and purposeful attack on informational material and thus contribute to the development of study habits and attitudes.
4. To establish economical ways of using references and other library facilities and to use the library in connection with subjects of study.
5. To encourage social uses of reading in true audience situations which lead to a refinement of tastes, a sharing of interests, and the development of socially effective oral reading.
6. To make due provision for the diagnosis of reading needs, special training, and remedial work, and to select challenging individual reading projects for pupils of superior reading attainment.

The course of study in reading. The statement of aims as given for the successive stages or levels of reading progress are obviously appropriate material for inclusion in the course of study.

So much of the material in the *Twenty-fourth Yearbook* has a definite bearing on the course of study that it may well be considered an indispensable reference on this topic until some more authoritative pronouncement is made.

The *Third Yearbook* of the department of superintendence is another valuable source to makers of courses of study in reading.

In a comparative study of seven very good and seven very poor reading courses the following points of contrast were noted:[5]

Good Courses of Study	Poor Courses of Study
General aims are stated at the outset. General aims indicate desirable breadth of the reading program presented.	General aims are not stated.
Specific aims for each grade or level are stated.	Specific grade aims are usually not stated or must be inferred.
Specific aims are in harmony with general aims.	
Grade aims are in line with progressive recommendations.	Recommendations, if any, are often out of keeping with progressive trends.
A variety of good readers is recommended and listed.	Basic books are prescribed.
Additional books and other materials are suggested.	Additional materials are either vaguely indicated or inadequate.
Materials make a progressive program possible.	
Books or their contents are classified or grouped with reference to types or uses.	
Desirable procedures or types of activity are proposed.	Procedures are described authoritatively.

[5] Laura Zirbes, *Comparative Studies of Current Practice in Reading with Techniques for the Improvement of Teaching*, Teachers College Dissertation, Columbia University, 1928, Ch. iv.

Good Courses of Study	Poor Courses of Study
The relation of activities to aims and materials is indicated.	Ground to be covered and division of time is arbitrarily assigned.
Concrete examples and illustrative types of procedure and activity are included.	No concrete suggestions are given.
Undesirable practices are not recommended or are criticized.	Some undesirable practices are required, others recommended.
Acceptable published sources are referred to in support of recommendations or in a bibliography of professional readings.	Basis for requirements or prescriptions is not given.
Provisions for individual differences are recommended.	
Standards of attainment are in harmony with desirable aims and progressive practice.	Standards of attainment are lacking or arbitrary.
Ways and means of evaluating reading outcomes are suggested. (Informal tests, standardized tests, and records of various sorts.)	
The relations of reading to other school work are indicated.	Reading is considered a separate school subject.
Helpful sources of further suggestion are referred to.	
Recommendations leave room for teacher initiative.	Teacher is given little or no freedom.
Organization, form, and plan of the course show desirable emphasis by grades.	Emphasis is often harmful and narrow.
Continuity and interdependence of work in adjacent grades are indicated.	

Good Courses of Study	Poor Courses of Study
The pupil is considered as an individual with social needs and capacities.	Classes are the unit of instruction.
The teacher is considered as a professional worker and her point of view is respected.	Teacher's status is clearly not professional.
The course of study in reading is obviously a handbook to be used as a help and guide in classroom work.	The course of study is little more than a brief general prescribed assignment, a few pages in length.
The purpose of the course of study is the improvement of teaching in the interests of the learner.	The purpose of the course is to secure uniformity and to lay down requirements in terms of the system.
The good course of study in reading is one of the most constructive instruments of democratic supervision.	The poor course of study is typically an exacting means of autocratic control.

When these same fourteen courses of study were analyzed for the specific reading activities recommended, it was found that the good courses contained more than seven times as many reading activities as did the poor ones.

It was further found that even the best courses of study lagged considerably behind the recommendations of progressive leadership in reading. This fact makes it inadvisable to use present good courses as models.

The progressive teacher who takes advantage of such leadership in special extension courses or summer sessions will find little encouragement in a situation where the course of study prescribes outworn practices.

Some reading courses are so poor and restrictive that they serve only to impede practice. Some are so good that they are significant agents in reconstruction. The difference in wealth, variety, and quality of suggestions is a chal-

lenge to supervisors who are facing curriculum reconstruction in reading.

Reading methods and procedures. The breadth and scope of the modern reading program precludes the possibility of giving in a chapter even a cursory statement of the variety of methods involved in the development of an adequate range of reading outcomes.

Investigations show that methods which stress mechanics achieve their ends at the expense of comprehension and favorable attitudes toward reading. All methods should avoid any type of activity in which meaning is left out of consideration. This holds even with reference to word recognition, for response in terms of meaning may be readily secured. It holds as well with reference to oral reading on all levels and it rules out much of the banefully meaningless word building and similarly barren types of so-called busy work in the lower primary grades.

Investigations also show that the nature of the reader's purpose determines to a very considerable extent the whole operation of the reading mechanism and the adjustment of the mental processes involved. This is the basis for assuming that the crux of the problem of reading methods is guidance in ways which promote purposeful reading of an acceptable variety of materials.

Purposeful reading activities are not only the core of a progressive reading program but are also the means of vitalizing and enriching all other subjects and classroom activities. If the teacher proceeds on the assumption that her major function is the administration of formal lessons she will want plans and systematic predetermined steps in procedure.

If, however, the teacher proceeds on the assumption that varied purposeful reading reduces the need of specific training to a minimum, she will consider it her major function to guide pupil activities so that reading purposes

may arise and eventuate, and she will realize that the reader's methods or procedures are best formulated in terms of his own purposes or those which he adopts and pursues, changing when those purposes suggest change. Her guidance will help children to discover the varied uses and values of reading. She will augment the learning values of every reading situation without disorganizing purposeful activity and predetermining pupil procedure by a restrictive overemphasis on formal or conscious learning.

She will frequently take advantage of certain types of reading situations to study the needs of individuals or of her whole group, and for the latter purpose she will avail herself of techniques which give her diagnostic information in objective form. Certain informal tests serve this purpose expeditiously and effectively and their use is as essential as a safeguard as is the periodic health examination and more regular routines of inspection and weighing. When such inquiry reveals some special reading deficiency or need she will be concerned with some specific corrective or developmental training and check its efforts.

The supervisor should have and give teachers access to specific references which explain and illustrate concretely the practical working out of various aspects of the progressive program in reading. Wherever possible, such materials should supplement general supervisory suggestions and fit the needs of individual teachers. An array of descriptive reports of contrasted good and poor lessons has been gathered [6] in the hope that it may serve to point out certain significant differences and to stimulate self-supervision on the part of teachers who wish to adopt preferred procedures.

The same study illustrates the use of check lists in evaluating teaching procedures. The following list of values

[6] Laura Zirbes, *op. cit.*, Chs. vii and viii.

was found in a single half hour of reading activity in the second grade.

Check List of Values in Reading Procedure

1. Meaning was emphasized throughout.
2. Pupil needs were studied.
3. Pupil needs were served.
4. All pupil responses were used with diagnostic intent.
5. Reading was purposeful.
6. There was special provision for poor readers.
7. There was special provision for good readers.
8. The situation was related to a previous class activity.
9. The situation was related to current out-of-school life.
10. Reading habits were checked up.
11. Good incentives were used.
12. The amount of actual purposeful reading by each child at his own rate was significant.
13. Pupils exercised choice and initiative.
14. The teachers' guidance augmented learning values.
15. The diagnostic data was used in a subsequent period.
16. The activity led on.

While this list is not perfectly adapted to all levels or types of situations it indicates an approach to the problem of method. A learning situation in which so many values are found is surely more worth while than one like the following which is, no doubt, still very common, although none of the values listed above seem to be clearly present.

An Almost Valueless Reading Activity

Approach or Introduction

Purpose of the approach: preparation for smooth oral reading.

Word study and drill on so-called "difficult" or new words of the next selection in the reader, these having been selected by the teacher especially in cases where they are not already listed in the book. Emphasis on pronunciation with some formal attention to meaning.

Locating the Selection

Waiting to be told the page number and responding to a formal signal to take out books and open them to a given page.

Reading

Reading paragraph by paragraph orally in turn with or without comment by the teacher on errors or on quality of oral reading. Rereading some paragraphs to improve quality of oral reading.

Answering teacher's oral questions, reproducing the content, or telling what the paragraph is about.

Good readers usually read first; poor readers last. Thus the oral reading proceeds, sometimes preceded or followed by silent study for the purpose of reading better orally. Certain parts or the whole selection may be reread in turn orally, while other pupils are supposed to keep the place, awaiting their turn.

The materials of reading. A progressive program in reading implies a rich, broad supply of reading materials. The Report of the National Reading Committee gives specific suggestions for the reading equipment in progressive classrooms and indicates the need for school libraries. Current tendencies in the supply of new reading materials and in the budgeting of funds for books reflect the influence of this chapter and of other pertinent parts of the report. Copious references to other sources are supplied and annotated in the bibliography. The supply of reading materials must be as inclusive as the broad aims of the progressive reading program, and as varied as the interests, needs, and purposes of the pupils.[7]

A progressive supervisor included an analytical survey of the local reading equipment and a five-year plan of book purchases in her supervisory program. The survey covered recreational materials and reference books, basic readers, work-type readings, and materials for the enrichment of content subjects. It also included such accessory pedagogical materials as were needed for beginning reading. It provided data on the number of copies on hand for use in each classroom and proposed a reapportionment of

[7] National Society for the Study of Education, *Twenty-fourth Yearbook*, Part I (Public School Publishing Co., 1925), Ch. iii, pp. 21-73.

funds formerly devoted to sets of supplementary readers, as a nucleus for a fund for classroom libraries.

Similar surveys would lead to more generous budgeting for book funds and a more progressive policy in the apportionment of expenditures. Numerous studies indicate the inadequacy of traditional equipment for the teaching of reading.

Progressive supervisors have done excellent work in providing teachers with a more adequate material basis for a modern program of reading. Publishers have responded generously to the recommendations of professional leadership in making new but desirable types of material available. Reviews in educational journals, textbook collections, and exhibits have done much to introduce new types of reading material to those who are charged with the purchase of school books.

Supervisors are realizing the economy and advantage of breaking up sets of supplementary books and ordering small groups and single copies. By this means class or school libraries may be developed at slight extra expense and to the great advantage of the children who thus have access to a much more comprehensive array of materials.

Measurements in reading. The outcomes of reading instruction and experience may be studied in a variety of ways. Among these the two most commonly employed are standardized and informal tests.

Standardized tests. The progressive supervisor should have on file sample copies of all standardized reading tests. The bibliography provides references which give the information necessary for the purchase of such samples. The following quotation from Part I of the *Twenty-fourth Yearbook* [8] indicates the responsibility of the supervisor in selecting tests and carrying out a testing program.

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[8] *Ibid.*, pp. 264-267.

Those who are seriously concerned with the improvement of instruction in reading cannot fail to realize the need for some tests or measures by means of which the reading abilities of pupils in particular situations can be compared with those of unselected groups. When such comparisons are to be made, it is essential that the tests or measures be so prepared that they may be given later and elsewhere under identical conditions and scored in exactly the same manner. The process by means of which tests are made acceptable for such use is called standardization. The process of standardization reduces to a minimum those factors which would make comparisons unfair or unreliable. Teachers and lay critics sometimes do not realize the necessity of holding to standardized directions for giving and scoring the tests and therefore take liberties with procedures which they consider unnecessarily didactic or otherwise poorly adapted to given situations. Even when made with the best intent, such variations vitiate the value of comparisons and invalidate conclusions based on the test results.

Teachers and pupils should come to think of standardized reading tests as impersonally as one thinks of measurements of height. Administrators can do much to foster this attitude and are perhaps somewhat responsible for the attitude of anxiety which causes teachers and pupils to react unfavorably to such tests. The interpretation of standard test results requires not only tact, but also insight into the complex nature of reading ability and the consequent limitations of a single measurement. Neither the pupils' progress nor the teacher's efficiency can be fairly judged by one test unsupported by other data. Furthermore, many of the significant outcomes of instruction in reading are not measured by existing tests. Supervision which depends too largely on test results, skews teachers to an overemphasis on the narrow range of objectives represented in available tests. Nevertheless, when properly used, interpreted, and supplemented with other information, standard tests are exceedingly valuable.

Bases of test selection. Turning again to the *Twenty-fourth Yearbook* we find that the following factors should be considered in the selection of standardized reading tests:

1. The test should be a valid measure of some significant type or aspect of reading ability.
2. If a test measures only one aspect or type of reading

ability, it should be supplemented with another reading test which measures another aspect.

3. The test should be available in at least two so-called equivalent forms, in order that retests may be given at appropriate intervals without reducing their significance by practice effect.
4. The reliability of the test and the derivation of norms should be considered. These are usually reported in the manual of directions.
5. The norms should be sufficiently precise to be of value in interpreting individual scores and should be stated in a form which permits comparison with other reading tests, subject tests, and measurements of pupil capacities.
6. The standardized directions for giving and scoring the test should be definite, easy to follow, and economical of time and effort.

Carrying out a testing program. The following considerations are also taken from the same source:

1. Teachers should be informed of the proposed testing program and of the conditions upon which its success depends.
2. Standardized directions should be followed in detail.
3. If the tests are given twice a year, in October and May, the attitude and work of the teachers is improved. The teacher who has a class which scores low in October, has an opportunity to show her effectiveness by the growth record rather than by the test scores themselves.
4. A testing program should be followed by a report to pupils and teachers.
5. When test results have been reported, teachers and pupils should receive practical help and suggestions by means of which improvement may be secured.
6. Problem cases should be studied by means of additional tests, diagnoses, and remedial work.
7. The test scores should be considered in reorganizing the classes and forming flexible groups for reading purposes.
8. Other factors not measured in standardized tests should not be neglected in a sound and inclusive teaching program and in the evaluation of results. Literary appreciation, dramatization, and love of reading are not so easily measured, but are nevertheless significant. Standardized

tests do not pretend to be inclusive measures of all reading values.

9. Children of low intelligence cannot be expected to do as well as brighter children. Similarly, children with language handicaps are often retarded in reading. Intelligence data and other pertinent facts are essential for the valid interpretation of tests' results.
10. Available norms are based on the average results of prevailing practice, and it is quite possible that such norms will move upward, as revised aims, scientific methods, and appropriate materials make themselves felt.
11. Because norms are merely measures of the average achievement of unselected groups, they should be used as reference points rather than as aims or standards.

Criteria that informal tests should satisfy. Standardized reading tests measure the outcomes of instruction. Informal tests and checks provide means for noting the pupil responses while reading, of observing the manner in which habits and abilities function in typical classroom reading situations. Informal testing is an integral part of guidance which every teacher should use regularly in studying the responses of pupils and discovering their needs. Other uses and advantages of informal tests are referred to in connection with the statement of criteria for such tests quoted below:[9]

1. It is absolutely essential that informal tests be more than silent reading devices. They should be carefully planned with reference to a broad range of aims and objectives, because the types of tests and responses required condition the character of the pupil's mental activity and quality of attention. Informal tests should be varied enough to guard against narrow aims of the overemphasis of certain types of reading experiences at the expense of others.
2. Informal tests should, whenever possible, be based on significant, worth while reading matter. Tests based on unrelated sentences, and containing irrelevant and arbitrary directions, are not suitable vehicles of instruction.

[9] *Ibid.*, pp. 262-263.

The effects of training based on such exercises are not so likely to spread or transfer that they warrant great expenditures of time or effort. It is far more economical to base informal tests on what children read, than to frame paragraphs or set up sentences in order to base tests or questions upon them.

3. The technique of informal tests should be simple and easily explained to pupils. Whenever possible, the technique should be self-explanatory, in order that there be the least possible expenditure of time in explanation of procedure and that there be the least possible liability of confusing the pupils. The responses should be well within the maturity and abilities of the pupils and should not necessitate undue effort or time either on their part or that of the teacher.
4. Whenever possible, the test itself should be a learning experience in which every pupil is thrown on his own responsibility.
5. The scoring should be so objective that the pupil realizes the fairness of the test and can almost always score his own work or that of other pupils by reference to a key.
6. The pupil should usually be made aware of the purpose of his reading and of the significance of his success or failure, and in the latter case, of some means of improving his powers.
7. Success in tests should give pupils satisfaction and should be rewarded chiefly by other reading privileges and responsibilities.
8. Tests should be framed and conducted to avoid temptations to copy, to guess, or to resort to other irrelevant cues.
9. The nature of each test should be adapted to the reading matter on which it is based. Questions of fact and analysis are inappropriately used with literary materials. Where appreciation is the desired end, such tests are not in place. Comprehension of sequence, of plot, or of total meaning cannot be tested or developed by means of questions that dwell on insignificant detail. Thus, tests must ascertain whether pupils are reading with the mind-set appropriate to the specific material.

Remedial work in reading. It is obviously not the supervisor's function to assume the actual conduct of diagnostic

and remedial work in classrooms, but the supervisory program in reading must take some account of this problem. In some situations where there is a great need it has been considered advisable to set up a reading clinic devoted to this particular purpose. In other situations a special teacher is provided who takes care of such cases in one or two buildings. In still other situations the regular teacher handles poor readers as one phase of group and individual work. Whatever solution seems most feasible the supervisor must be ready with sound suggestions.

The importance of insight into the causes of reading deficiencies. Insight into the factors which hamper reading progress is a vital need of the supervisor. Several studies point to the serious effects of early failure in reading and the consequent prevalence of inappropriate attitudes. The failure to utilize existing interests as a basis for reading, and the lack of a definite program of interest building and attitude conservation are serious matters. Certain reading procedures which build skills at the expense of attitudes have been prevalent and they too often eventuate by defeating their own ends. Experience shows that many pupils whose reading achievement is satisfactory have not acquired an abiding interest in reading as a mode of experience which they will be inclined to use voluntarily to the enrichment of their own lives.

Reading deficiencies for which teaching is responsible. Narrow aims or peculiarities of emphasis are responsible for another large group of deficiencies. Overemphasis on one aspect of reading usually results in some skew or lack. This lack is often due to a peculiar emphasis in a manual or course of study or to overpotency of certain supervisory suggestions. Well balanced instruction, conceived in the light of broad aims, would eliminate such causes of deficiency, whereas narrow aims and poorly balanced instruction actually produce certain reading difficulties.

The causes of certain other deficiencies are located in the teacher. When the quality or organization of instruction is not conducive to growth in fundamental habits and skills, some pupils develop progressing deficiencies. These are at first slight and easily remediable; but vague, general, or purposeless teaching is not corrective. It is rather conducive to further deterioration of abilities.

Problems relating to language handicap. Language handicaps predispose pupils to reading difficulty and therefore point to the need for special adjustments and provision for all children of foreign parentage. Such general adjustments would certainly have particular reference to beginners and thus tend to strike at the cause of difficulty constructively, reduce retardation and also cut down the number of remediable cases due to language factors.

Remedial problems for which unsuitable materials are responsible. Another large group of causes could be attacked by eliminating undesirable reading matter, by adjusting the grade placement of difficult books, and by introducing a greater variety and abundance of easy material suitable for sight reading. So much has been written on this subject that it is hardly necessary to point to this need.

Problems explained by the pupil's school history. Irregularity of attendance and other gaps or lacks of continuity in the pupil's school experience lead to inevitable reading casualties. These may be reduced by a plan which promptly gives such pupils special attention until their adjustment is assured. Cumulative records should make information on every pupil's school history accessible.

Physical handicaps. Certain types of deficiency are due to physical defects. The chief physical defects are cases of faulty vision or hearing. Failure to examine pupils for such defects at entrance is often responsible for inexplicable slowness or seeming dullness which is not properly diagnosed until considerable harm is done. The McCallie

Vision Tests for illiterates (Stoelting, Chicago) can be used by first-grade teachers where medical inspection is not available, and informal tests of hearing can be arranged in the classroom when such defects are suspected.

Mental deficiencies. Cases of low intelligence may be discovered by the use of intelligence tests. These should be given to beginners at school entrance so that the results may be used in grouping beginners and dealing with deficient groups in terms of their mental handicaps. In subsequent grades a knowledge of a child's mental capacity gained through such tests is essential for the interpretation of his achievement and for an intelligent attack on reading difficulties.

Causal factors in the home. Finally, home conditions are found responsible for certain deficiencies. With the best of intentions parents often rob children of all incentive to learn to read by continuing to read for them and taking all the initiative during the period when they should begin to assume some responsibility of reading for themselves. Occasionally the matter is made more complex by home teaching which utilizes inappropriate methods or by failure to realize that adult standards of literature cannot with impunity be imposed on children. Tastes thrive best on materials adapted to present interests and abilities.

Problems of prevention. By far the major number of our reading problems are preventable by a revision of aims and a readjustment of requirements, materials, and procedures. If we attack the causes of reading deficiency in this way it is entirely possible to reduce the number of remediable cases. By clearing up cases and simultaneously working on the improvement of learning conditions and procedures which reveal and meet individual needs, day by day, the number of remediable cases in one school was reduced from twenty-eight to one in four years. The case which has not yielded to treatment has been diagnosed each

year and has received special remedial work during four years without marked improvement; but such cases are rare and should not discourage careful work. Chronic disability is not a legitimate diagnosis until every possible remedial effort has been tried. Teachers should be helped to proceed from the detection of deficiency to an analysis of the contributing factors, whatever they may be.

In conclusion it seems fair to say that the proportion of reading failures and cases of marked deficiency in the total enrollment is a better index of the adequacy of any school's reading program than reading achievement test medians or other measures of central tendency. Furthermore, the reduction of the proportion of reading failures by direct attack on the various causes of failure is a worthy objective and a sure means of cutting off the supply of remediable cases at its source.

Major duties of supervision in reading. *Outlining the essential characteristics of a progressive reading program.* In view of the fact that investigations in reading have provided a basis for fundamental reconstruction, it is incumbent on supervision to acquaint teachers with these findings and to outline some of the major characteristics of progressive practice. It is not enough to help teachers to do better the things which they are already doing in their classroom work in reading. There is need for broadening the teacher's conceptions of reading aims and procedures, for suggesting new types of reading material and for developing progressive standards of attainment. This can and should be done without implying that teachers are entirely uninformed on the findings of investigation. It can be done very impersonally by references to the professional literature. By the wise use of selected references, teachers can be put in touch with the sources in which they may find further guidance and suggestion.

The mere authoritative prescription of sudden changes

of policy, procedures, or standards in reading is likely to lead to confusion unless teachers are given the advantage of familiarity with recent reading developments and some general view of progressive trends.

A further cause of confusion may be avoided if some fundamental phase of the reading program is made the immediate matter for supervisory consideration and if successive steps in reconstruction are planned and undertaken in turn, coöperatively, and without undue pressure. The following summary is an authoritative statement of the outstanding recommendations for reconstruction which should find some place in a supervisory program in reading.[10]

1. A broad conception of the aims of reading instruction based on a clear understanding of its wide significance in school and other life activities.
2. Vigorous emphasis from the beginning on reading as a thought-getting process and the subordination of the mechanics of reading to thought interpretation.
3. A clear recognition of the vital contribution of wide experience to good interpretation, with special emphasis on prereading experiences and the temporary postponement, if necessary, of formal instruction in reading.
4. Provision for wide reading as an essential means of extending experience and of cultivation of strong motives for, and permanent interests in, reading.
5. A significant increase in the amount and variety of reading materials and a corresponding improvement in their quality.
6. A clear recognition of the fact that both recreatory and work-type reading are essential in a well balanced program of instruction.
7. Definite provision for the systematic development and independent use of specific reading and study habits in all school subjects.
8. Emphasis on the enjoyment of literature as a means of fuller living, rather than on analysis and detailed study technique in this field.

[10] *Ibid.*, Ch. xii.

9. New types of organization and procedure in classes made necessary by the adoption of broader aims in reading.
10. Adequate provision for differences in individual capacities, needs, and tastes.
11. The classroom use of informal tests as essential means of discovering group and individual needs.
12. The continuous study of progress toward the essential objectives of reading, namely, wide experience, strong motives for, and permanent interests in, reading, and effective habits and skills.

There are, perhaps, few supervisors who have not found in the source quoted above a wealth of suggestion and support for the progressive reconstruction and improvement of reading. This is indeed the purpose which the National Committee was attempting to serve when this report was made available. The unanimous recommendations of a group of seven educational leaders in the field of reading have helped to secure for local supervisors a readier hearing for proposed changes, and have provided a professional platform to which such changes could be referred. Until some more authoritative pronouncement is produced this *Yearbook* will therefore furnish an outline of a desirable reading program. It is not a program for bringing about changes but describes progressive practice toward which change should be directed.

Setting up a supervisory program. The plan by means of which the supervisor hopes to move practice forward, securing the adoption of broader aims and more progressive procedures may be considered as a supervisory program. The plan may provide for a preliminary study of the *Yearbook* by supervisors and teachers. It may initiate a special course in reading under the auspices of some training center. It may provide for group or committee work for the discovery of local needs in reading. These are a few of the possible first steps in a supervisory program. Obviously, whole-hearted coöperation of the teaching body is

essential to the conduct of this supervisory program. Teachers must therefore be made aware of the need for reconstruction and have a part in the determination of the program. They must share the responsibility for putting the program into effect.

There is perhaps no one plan or program of reconstruction in reading which is better than any other. The best supervisory program for any reading situation is the one which secures the greatest measure of genuine teacher coöperation in the attainment of essential aims of reading as these are envisioned by scientific studies, professional leadership, and creative teaching. However, some one with vision must assume the major responsibility proposing alternative plans and finding sound bases for reconstruction. Haphazard supervision cannot be as effective as carefully planned coöperative endeavor along definitely accepted lines of advance. The requirements of democratic supervision should not be construed to limit the supervisor's responsibility for professional leadership nor omit her in an evaluation of the progress of reconstruction.

While there are certain points which are common to most well conceived supervisory programs in reading, it is none the less true that there is variety of emphasis and procedure. Almost every plan starts out with some form of inquiry, survey, or investigation, and utilizes the findings as a point of departure. Some plans are very broad while others are narrowly specific. Some programs indicate a large measure of teacher coöperation while others are surprisingly prescriptive, making slight allowance for initiative and less for individual differences in teachers.

No doubt the emphasis in a supervisory program most frequently reflects some serious lack or need revealed in a local inquiry or survey which was thus in a sense diagnostic At its best, diagnostic supervision should deal with

the causes of reading deficiency and institute a supervisory program with preventive as well as remedial intent. For example, a heavy emphasis on rate and comprehension in the intermediate grades may be necessary because of poor methods in the primary grades, or an emphasis on remedial work with nonreaders in the upper primary grades may be needed because of an early entrance age or an oversystematic start which makes no provision for individual differences in readiness. Emphasis on the experiences and attitudes upon which the effectiveness of initial instruction depends may lead to the reduction of first-grade failures. Disproportionate emphasis on skills and power may be a superficial means of dealing with one aspect of the reading situation, in a manner which leads to later complications. A supervisory program which investigates the causes of reading failure in the first grade may reduce the early emphasis on skills and, by making room for a happy start, may secure a broader measure of reading growth and high attainment by the end of the second grade.

Supervision may actually be responsible for the persistence of certain prevalent reading disorders when it institutes remedial measures without examining into the origin of common deficiencies. For example, remedial measures to correct word calling in the second grade would not be necessary if drill on words in isolation, with excessive emphasis on recognition, were not responsible for creating this general remedial need. Similarly, prescriptive requirements for extensive reading aggravate the condition that makes such measures seem necessary by failing to provide for intrinsic interests and favorable attitudes. Again, the acceptance and use of prevailing norms as desirable standards of attainment in reading may actually sanction and fix traditional procedures, whereas progressive practice is advocating broader aims, richer content, and wider experience, all of which will naturally lead to a

revision of prevailing norms and broader means of evaluating reading attainment. Obviously supervision should see the reading program broadly and as a whole. Even when it seems advisable to institute some program with a narrow emphasis, supervision must take the responsibility for ensuring proper balance and due provision for the various types and levels of reading activity and attainment.

Putting the supervisory program into effect. Any program of supervision in reading utilizes ways and means of influencing practice and thus realizing its objectives If soundly conceived, it aims to enlist the whole-hearted cooperation of the teaching staff from the outset, gives stimulus and direction to effort by providing a wealth of concrete suggestions and means for clarifying the newer conceptions of reading procedure. If well conceived, a supervisory program contributes to every teacher's insight into the problems of reading, to her vision of its significance in a modern school, and to her sense of the relative values of various phases of the reading program. If wrongly or narrowly conceived, a supervisory program distorts the emphasis of instruction and disturbs its balance or leaves teachers unconvinced or confused and increasingly dependent on supervisory direction or approval. Democratic supervision should select from a wide array of possible ways and means those which are not only sound in their application of investigational findings but positive and liberating in their effects on teachers. Used independently many of these are in a sense supervisory devices. Utilized more legitimately as steps or phases of a general plan each has some definite function or specific contribution to offer.

Supervisory ways and means should be selected in terms of their potential effects and their use should be planned with a view to realizing these effects. Thus, there are several ways and means of giving teachers concrete examples of good procedure. From these, selection will be

made and those which are most pertinent and feasible in the light of local needs and conditions will have a place in the plan. It may be essential as a first step to give teachers a vision of the broader possibilities of a progressive reading program. For each phase of a program the selection of ways and means must be made within the limitations of local conditions over which the supervisor has no control.

Dealing with factors that are responsible for poor method. Certain factors no doubt influence teachers in their adherence and use of inappropriate methods. Where such factors are clearly operative the supervisor may deal with the matter more constructively by realizing the particular contributing circumstances which lie at the base of a given example of poor teaching and seek to apply a specific corrective. A few of the outstanding factors which are responsible are cited.

The influence of early experience and training. Many teachers begin their teaching by reproducing the type of instruction which they received as children, and continue with slight modifications indefinitely. Others apply in their practice the suggestions and theories with which they first came in contact during their training or practice teaching. Obviously such teachers are in need of more progressive standards of reading instruction by which to measure, judge, and plan their work. Summer courses, extension courses, and reading courses will provide contact with new standards and point to the need for abandoning traditional or unprogressive types of classroom procedure.

It is a sad fact that many training schools are manned by instructors who, having themselves never caught the vision of progressive standards and procedures, proceed to indoctrinate young teachers with outworn theories and practices. Supervisors will therefore do well to study the offerings of schools from which they draw their chief teacher supply and also to organize special conferences or

special study groups for teachers who are committed to outworn practices.

The influence of manuals and specific suggestions in courses of study. Some teachers are manual bound, adhering religiously to the plans proposed in a manual or feeling bound by some set requirement in the course of study. While these teachers may do a very efficient type of work there are certain weaknesses which are the inevitable concomitant of such uncritical and hidebound allegiance to printed guidance plans. These teachers are likely to overemphasize the place of the basic reader, to put undue stress on mastery of reading selections, and to feel slight responsibility for reading activities that are not referred to in the manual. The narrowing effect of such attitudes is obvious. Such teachers must be helped to adapt reading procedures to pupil needs and interests and to select from the array of possible procedures those which are most suitable for the group in question.

Planless or spontaneous teaching. Some teachers do not study the reading needs of their pupils nor investigate the possibilities of their materials in advance. They come before their classes unprepared. The intensive study of the selection gives the teacher a foreknowledge of the possibilities of the material and takes fuller advantage of desirable leads. Planless teaching is not the solution of the problem of method.

Teaching which leaves no room for pupil initiative. There are teachers who plan too minutely, thus robbing the reading situation of all spontaneity and requiring pupils to carry out dictates or predetermined activities instead of participating purposefully. Planning can and should make due allowance for purposing on the part of pupils.

Narrow teaching. There are teachers who utilize one or two set plans for reading lessons, applying them to anv-

thing and everything with slight variation. Such teachers must learn to adapt activities to the material purposes. They must be helped to see that the reader's purpose must direct his attack on the material and that the variety of reading materials leads to a similar variety in procedures when purposeful reading is the order of the day.

Teaching which lacks balance. There are teachers who adopt some extreme position or who develop some phase of reading out of proportion to its relative significance, slighting other important considerations and subordinating materials and pupils to their own opinionated preferences. Such teachers need an objective basis for self-criticism. Similarly some teachers neglect or favor part of the class and fail to provide legitimate means of reading growth for all. Some overemphasize skill or power at the expense of favorable attitudes and rich variety of reading experiences.

These are but a few of the special types of deficiency in teaching which challenge constructive supervisory criticism. Among others which mere mention designates are device hunting, failure to check or study pupil progress, and the undue use of extrinsic motives. Each of these problems is a matter for specific supervisory guidance.

Progressive types of supervisory service. With the passing of inspectorial supervision certain unfavorable reactions toward supervisors are less frequently noted. The supervisor who acts as an adviser or consultant is bound to be more welcome than her critical or prescriptive predecessors. In the field of reading where it is particularly desirable to institute certain very fundamental new procedures, the supervisor who adopts the consultant's attitude reduces antagonism and secures genuine coöperation by finding ways to serve common needs, and supplementing these with opportunities for consultive conferences in which practical problems are raised by teachers.

Providing teachers with opportunities to see and analyze progressive work in reading. The opportunities for teachers in service to see progressive work in reading in process are bound to be few. Nevertheless it is an established fact that much may be learned by the observance and study of a new procedure when it is guided by a good teacher. The teacher who has nothing but her own experience as a guide misses some of the spur which comes from an exchange of experiences and a chance to see others put progressive theories in practice. Supervision should increase opportunities for the observation of good teaching by discovering teachers whose work in reading is especially effective and utilizing their teaching to stimulate others to do progressive work. Various means have been devised to accomplish this end.

In many school systems teachers have been freed from their own teaching responsibilities for an occasional day on which they were at liberty to visit other teachers at work. This practice has certain potential values which would be hard to duplicate by other means, but it often falls far short of these.

Supervision can do much to enhance the value of such visits. For example, if the supervisor arranges to accompany a group of teachers on a visit to one or two classrooms where particularly effective work in reading is under way, many of the values which would otherwise be lost may be brought up for discussion in a group conference. This plan may often be used in connection with institutes, association meetings, or intervisitation between adjacent schools. In other cases neighborhood or zone meetings include regular arrangements for visitation. In some schools individual visits are exchanged between capable teachers who have certain common problems. Thus they can encourage and help each other.

When the supervisor chances upon some excellent read-

ing situation she may share its values with others by securing a descriptive record of her observations together with a statement of the materials used and an analysis of the values or outstanding points of interest to her as an observer. Teachers who subsequently went to visit might thus also be guided in their observations.

Teachers who are in need of special help in some particular phase of reading activity should be referred to teachers who have attacked the same problem with success. This necessitates some form of supervisory record by means of which the supervisor keeps track of the types of work with which she has come in contact in her visits and of the particular contribution which various teachers could make because of their demonstrated success in coping with some particular phase of reading.

Although less natural than actual classroom situations in reading, demonstration lessons have certain obvious advantages over them. They may be planned with reference to some particular group need. They may be observed by large numbers of teachers without interfering with the regular work of any class except the one under observation. They may be followed by conferences in which the significant points of value are brought home to a large group of teachers at once and made immediately available as a source of suggestion and a concrete example of the practical working out of some particular phase of the reading program.

But demonstration lessons can seldom be given with the necessary frequency to cover all the vital phases of progressive practice in reading, nor can visiting days and supervisory visits be sufficiently numerous to be depended upon as sufficient for these purposes. Many of the identical values can be obtained in other ways and supervisory ingenuity must find and open such ways.

In San Francisco and in Detroit assistant supervisors

make extended visits to classrooms, studying the teachers' needs, sharing the teaching responsibilities for a few days, and discussing the problems which arise during this period of coöperative teaching. In Rochester teachers who have been especially successful in reading are set apart to render requested types of demonstration service to other teachers in their own classrooms. In Washington able teachers are relieved of part of their classroom responsibilities to participate in this type of supervisory service. In St. Louis case studies are made of certain phases of teaching and such studies are published in a bulletin for general use. In certain other cities the services of a supervisory consultant are engaged to demonstrate, observe, and analyze reading lessons with the local teachers, or to utilize case studies of current practice as material in a series of working conferences. In Baltimore this work is done by a group of supervising or helping teachers who in turn are helped to accomplish their work through contact with specialists in reading.

The literature of reading does not furnish enough concrete embodiments of theory in descriptive records of actual reading situations. Supervisors should utilize available sources of concrete suggestion for the improvement of teaching. References to published accounts of progressive practice may be supplemented by mimeographed copies of similar reports gathered in the local situation. These are but a few of the ways which supervision has devised to provide for contacts with progressive practice which may be utilized as means for the improvement of teaching.

Some of the published accounts of good teaching have already rendered significant service in the clarification of progressive recommendations and the improvement of current practice. In order that other references not so well-known may render similar service, they have been analyzed for concrete descriptions of classroom reading activities

and these have been included in the bibliography annotations.

Providing ways and means for studying the learner's needs. When teaching is defined as professional guidance for learners it assumes responsibilities for discovering the learner's needs. The mere hearing of recitations and making of assignments gives way to diagnostic teaching when the teacher conceives her work as one of guidance in the development of desirable attitudes and habits and in the enrichment of pupil experience. This point of view should be put before teachers. It involves the utilization of ways and means for securing evidences of difficulty or need as data upon which the teacher may base her work with individuals or groups. The supervisor should help teachers to develop diagnostic procedures in connection with regular class work.

When teachers of reading view their function in this light, the usual quota of remedial cases will be materially reduced by timely guidance which prevents the formation of bad habits and deals with the cause of incipient deficiency without the delay that makes such causes difficult to trace. Supervision which judges teaching by its effect on learners is concerned with the development of ways and means of studying the learner's responses and interpreting them. Among such means are the diverse types of informal reading tests, each designed to reveal some particular need or type of reading response, check lists of reading habits, and the various means of analyzing reading difficulties and investigating reading attitudes or interests.

In the preparation and use of such plans and materials supervisory guidance should render expert service by acquainting teachers with the proper uses of published materials of this sort and setting up criteria for selecting worth while materials and developing informal checks and tests based on materials actually being read for their content

values. Only thus can pupil responses to typical reading situations be investigated. The use of unrelated paragraphs and the arbitrary directions may be reduced to a minimum if there is due provision for varied, purposeful reading of significant reading matter with some means of checking up on the attainment of such purposes by individual pupils. Certain techniques of informal testing are surely a matter for supervisory concern. The Report of the National Reading Committee [11] devotes a whole chapter to this problem. It is also given considerable attention in a recent work on the supervision of reading [12] and in a report of experimentation in the primary grades.[13]

Special projects in the supervision of reading. Under this heading certain activities not comprehended in a general supervisory program may from time to time give the supervisor a chance to contribute to reconstruction in reading. Supervisory projects of this sort often eventuate in some constructive report, bulletin, or other publication which renders general service and achieves well deserved professional recognition. A variety of suggestions for such projects may prove suggestive.

Using the local situation to study reading problems still in need of investigation. Notwithstanding the wealth of investigational literature in the field of reading there are still numerous problems on which further inquiry is necessary, before supervision can proceed on a scientific basis.

In its recent report, the National Reading Committee made only tentative recommendations in fields where experimental evidence is still lacking, and designated the reading problems in urgent need of investigation.

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[11] *Op. cit.*

[12] Gist and King, *The Teaching and Supervision of Reading* (Charles Scribner's Sons, 1927).

[13] Laura Zirbes, "Practice Exercises and Checks on Silent Reading in the Primary Grades," Teachers College, Columbia University, 1925.

In his summary, Gray[14] makes repeated reference to the need for studies to clear up controversial issues and to give reconstruction in reading a sounder basis. Almost every published report of investigation concludes with a statement of problems which further studies should attack.

Many of these problems are problems of method that must be solved by supervisory investigations or classroom studies. For example, the classification of pupils has proceeded much farther than the adaptation of methods and materials to ability levels. Where such classification is established, analytical studies and controlled experiments should proceed with the evaluation of various plans for adjusting reading activities and recommendations to various capacity levels.

Some whole school systems or buildings are confronted with the reading problems raised by a language handicap. They in turn could contribute significantly to the solution of these problems.

The best situation for the investigation of any practical reading problem is one in which that problem challenges study and calls for solution. Many problems cannot be solved by the laboratory psychologist but must wait for solutions which utilize the field situation as a laboratory. Specialists in the experimental attack on reading problems should be consulted by supervisors and should either be asked for advice in setting up studies or given the privilege of conducting the studies in the field.

Setting up conditions and experimenting with new procedures or trying out new materials. Supervision should hesitate to recommend for general use, procedures and materials which have not previously been investigated in use. It is therefore highly feasible as a supervisory measure to study the effectiveness of new plans and untried mate-

[14] W. S. Gray, "Summary of Investigations Relating to Reading," University of Chicago, 1925.

rials under experimental conditions and to utilize the data from such local investigations in arriving at general supervisory recommendations. Such experimental situations should be manned by teachers who are scientifically open-minded and adaptable enough to follow an experimental procedure without letting their prejudices or preferences obscure the issue.

By this means supervision may also discover teachers who are particularly interested in the scientific study of reading and give them opportunity for study, service, and advancement in this field.

Instructional research is thus an important phase of a supervisory program in reading and may often be a means of contributing new data for wide application. Examples of such experimentation in the literature of reading demonstrate its value.

Providing the essential conditions for progressive work in reading. Certain conditions which hamper the effectiveness of instruction must be a matter of concern to the supervisor. Among these are limitations of reading equipment, and paucity of material, or lack of variety in the supply of books. Progressive work requires far more in the way of reading materials than was formerly considered essential. Book budgets must be increased, and library facilities extended if the broad aims of a modern program in reading are to be attained. This may mean careful planning for community support and coöperation.

If one function and duty of supervision of reading is the facilitation of better teaching and wider reading experience through the improvement of the material equipment and working conditions upon which the attainment of broad and progressive reading aims is so definitely conditioned, supervisors must know the best materials of reading, must utilize sound criteria in the selection of textbooks and other reading materials, and make recommenda-

tions for a significant enlargement and wise use of the budget for books.

Such other conditions as are likely to affect the variety, quality, and extent of reading experiences in the classroom are similarly matters of supervisory interest and activity. Supervisory interest can do much to foster the development and proper use of public-library facilities and also to promote the establishment of school libraries.

Making sound guidance materials accessible to teachers. What do teachers consult for guidance in the teaching of reading? What could they use? Do they follow a manual? Do supervisory suggestions alter their practice? In putting a supervisory program in reading into effect, certain major premises must be clearly set forth. Concrete applications of these fundamental principles must be made a matter of record and reference. Certain definite helps must be made available for regular use by teachers. Certain coöperative endeavors of supervisor and teachers should result in guidance materials and constructive suggestions which may continue to function in the improvement of teaching. Such material should no doubt first appear in tentative mimeographed bulletins, but should gradually accrue and take form as a course of study or as a supervisory pamphlet dealing with some particular aspect of the reading problem. Publications of this sort can render a distinct service in the promotion of progressive work. The fundamental issues on which an acceptably broad range of desirable reading outcomes must depend can thus be given expression in more or less permanent form and supervision is free to furnish consultative service on new problems.

Thus a progressive course of study may be developed functionally, as an actual outgrowth of supervisory leadership and teacher participation in the solution of local problems. Conceived thus, it is neither restrictive nor

prescriptive. At its best the course of study in reading is an instrument which democratic supervision creates in the process of training teachers in service, and then utilizes for the conservation of effort and also as a point of departure for coöperative endeavor in the further improvement of teaching.

Some typical guidance materials, bulletins, and good courses of study developed in connection with the supervision of reading are referred to in the bibliography.

Initiating group projects for teachers interested in the improvement of reading. Every supervisory program should make a place for activities in which teachers may secure the legitimate satisfactions of coöperative endeavor in some undertaking which they consider worth while. This is particularly true of reading because it gives varied opportunities for such activities from which teachers may choose those which serve their interests and needs. Such activity must be elective rather than compulsory, and its outcomes must be considered as contributions beyond the actual requirements of the teaching service. Only when viewed thus will teachers be challenged to put their best efforts into the work and find in it inspiration for professional growth and study. The development of esprit de corps through such projects may be remarkable but it is essential that every provision for encouragement and whole-hearted participation be coupled with supervisory guidance given in a democratic spirit. Where the outcomes of such work serve some wider use it is only professional to credit the work to those who did it.

For example, when a supervisor realizes that classroom libraries are in need of enlargement she not only arranges to secure a budget allowance for this purpose but enlists the coöperation of teachers in group projects through which the expenditure of such funds may result in a more desirable selection of books. One committee of teachers could

arrange a central loan exhibit of books. By doing this herself instead, the supervisor may perhaps get it done more expeditiously, but by coöperating with a committee or group in offering them the use of her sample copies and the use of references which give good lists, she gives teachers an impetus to the consideration of such materials. She may also suggest criteria or bases for selecting books, an apportionment of funds to secure balance between purely recreatory materials for individual reading and reference books or collateral readings in the content subjects. She may secure the coöperation of libraries or book shops. She may propose that teachers in each building make out their requisitions. She may suggest that good books not placed on the budget lists be recommended to parents and that letters containing such lists be sent to parents as suggestions for Christmas book buying. She may propose a follow-up project in which the teachers report on pupil reactions to the new materials, or suggest that in the exhibit a catalogue of books with room for annotations be provided for reference by other teachers. Subsequently, other groups of teachers could make out suggestions for summer reading for pupils of various grades, including some suggestions for vacation activities which would lead to an interest in nature study.

This example shows how one such project provides a variety of stimuli to group work, and how supervisory cooperation may play a part in getting a sequence of such activities under way. Other examples could be cited. Almost any need of which supervision is conscious can be the source of similar suggestions. A few other reading problems in the solution of which group projects could enlist a high type of professional coöperation are suggested.

A local reading survey or testing program may reveal the need for some provision for remedial work in reading. A committee could be organized to formulate a practical case-

record blank and means of measuring progress. This committee or another could utilize these case-record cards to find common types of deficiency and to propose types of remedial training or practice which could be administered by the regular classroom teacher while other pupils engage in extensive reading. Simultaneously a group of teachers could work out proposals designed to cope with the remedial problem due specifically to language handicap or to some other specific factor. Other teachers could be making special case studies of serious remedial problems and contributing these to a case-study file to which others might have access as the need arose.

There are numerous sources of other problems for group work of a constructive nature. Teachers may be brought face to face with some local reading need or condition which they could meet coöperatively, in a manner which challenges their interest and enlists their effort.

Individual interests or aptitudes may account for the fact that some teachers are unusually successful in a particular phase of reading guidance. Such unusual ability may be given a satisfactory outlet and an opportunity for service when committee projects are proposed. In such cases committee members are selected because of their particular strength in the phase of reading which the committee in question is undertaking. Recognition could hardly be more intrinsic, and groups made up in this way give good teachers the further stimulus of collaboration with those similarly selected. Problems common to some one grade suggest another type of group undertaking for teachers. For example, in the first grade, the preparation of an exhibit in which the relation of reading to first-hand experiences and to other class activities was exemplified, would be a worth while project. If this exhibit were confined to the preprimer period it would help teachers who are overanxious to begin formal work in reading.

Among the great range of reading problems there are some which are either too big to be handled economically by individual effort or which cannot be solved so well without group action. Among these are the following:

COMMITTEE PROJECTS IN READING

1. The construction of informal tests which are based on the readers which primary children are using.
2. The preparation of bibliographies of books and other references found helpful by children in the course of some specific unit of study in History, Geography, or the Social Studies, as, for example, Colonial Life or Transportation.
3. A compilation of reports of various types of free dramatization.
4. A compilation of examples of purposeful reading assignments in contrast to formal or didactic assignments.
5. A compilation of types of word study which emphasize meaning, using words in context instead of in lists.
6. An exchange of experiences with pupils whose negative attitudes toward reading became positive as a result of guidance.
7. Suggestions for spare-time activities for rapid readers.
8. An exhibit of classroom bulletins, class newspapers, magazines, or books made by children.
9. Examples of the purposeful use of reference materials.

Some of these projects could readily be organized as problems for the coöperation of principals who would gather materials on their regular visits to classrooms.

Organizing a supervisory service file on reading. Helpful materials assembled and used in conferences with individual teachers, and interesting reports of reading activities observed or carried out are often too valuable to be lost to further use. The supervisor who keeps an active file of such materials and others that will serve similar purposes has a fund of suggestion to put at the disposal of those who come to her office for conference or help. One further possibility of the supervisory service file is that by means of it the supervisor herself may gather materials

and file them as a service to her teachers, as a means of giving recognition to good work, or as a nucleus for committee work. Certain questions are asked so frequently that the supervisor who puts her answers to questions on file can save much time and also give more adequate replies by referring teachers to the answers in the file.

When a supervisory service file is also utilized to refer teachers to professional readings on their own practical problems, the supervisor extends her service immeasurably. The books to which reference is made should then be made available in connection with the file. The bibliography at the end of this chapter has been made with a view to facilitating this type of service.

The following example shows how a supervisory service file helped in the solution of one teacher's problem and led her to further study. An experienced teacher seemed unable or unwilling to give silent reading a reasonable place in her program. The supervisor saw that this was due in large part to the fact that this teacher was without knowledge of the techniques involved in the guidance of silent reading. She asked the teacher to come to the office to see some materials which she might find helpful. The teacher came and was referred to the file folder on purposeful assignments and another on informal tests. The first folder consisted chiefly of contributions which some of the teacher's own colleagues had collected but also contained two clippings which the supervisor had supplied. The second folder contained specific references to a number of books, all of which were in a case near the file. It also contained a memorandum stating that a group of teachers whose names were given was at work on a committee project on this topic, and that they would be glad to receive copies of informal tests made and used by any teacher. The teacher referred to the books, made a few notes, replaced the folders and in so doing noted other topics on which

folders were available. She subsequently thanked her supervisor for the timely help, and asked whether she might consult the file again after trying out some of the suggestions for purposeful assignments and informal tests. Subsequently the supervisor found that this teacher had realized the relation of these materials to silent reading in practice.

Keeping in touch with progressive trends in reading. Supervision which defines itself as professional leadership must take every opportunity for keeping in touch with progressive trends. This calls for regular reading of current professional periodicals of scientific standing; contracts with professional leaders in reading and with their writings; frequent recourse to the recent findings of investigation. It calls for a progressive attitude which realizes what the unsolved problems in the field of reading are, and keeps up the search for solutions in order to apply the findings of scientific studies and the recommendations of professional leaders in the performance of those supervisory functions which have to do with reading.

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CHAPTER V

THE SUPERVISION OF HANDWRITING

BY JOSEPH S. TAYLOR

Sometime District Superintendent of Schools, New York City

Why a supervisor of handwriting? Supervision as understood in education at present is the product of a slow process of evolution. In 1789, we are informed, the Boston School Committee visited the schools once in every quarter, in groups of not less than three, for the purpose of devising the "best methods of instruction and government" and advising the masters concerning the teaching and administration of schools. In other words, at the beginning of our present Government the Boston school teacher was supervised by laymen, who presumed to instruct him in the technique of his profession. A parallel procedure would be the carpenter advising the surgeon how to operate for appendicitis!

Now the supervisor is a superteacher, an expert with technical training, who has himself had the experience of those whom he supervises, and who by special knowledge and skill has proved his fitness to lead and instruct others. Penmanship, however, has not quite caught up with the procession. It is about the last of the subjects in the curriculum to receive expert attention. In fact some educators, like Colonel Parker,[1] have not recognized it as a "subject" at all but have treated it as a "mode of expression."

[1] Francis W. Parker, *Talks on Pedagogics* (A. S. Barnes & Co., 1894).

Others have referred to it contemptuously as a matter of slight importance. "The typewriter," they say, "is destined to displace handwriting, so why bother with it at all?" Many private schools permit their pupils to write an atrocious hand because penmanship is a subject beneath the notice of a superior person! High schools and colleges are notoriously indifferent to the kind of writing they get, even though the teachers are often condemned to read many themes and exercises perpetrated in illegible scrawls.

In his recent book on handwriting the author[2] has accounted for fifty cities that employ one or more supervisors of penmanship; but there are still many towns and cities, including New York, the metropolis, where no writing experts are employed to supervise teachers. Drawing, music, physical training, manual training, sewing, cooking, kindergartens, primary grades, modern languages all have been provided with special supervisors, but penmanship has had only partial recognition as a subject worthy of serious consideration.

Aims and standards of handwriting. *General aims of handwriting.* The scientific order would place the aims or objectives of writing at the end of this discussion rather than at the beginning, because they are inferences based upon the nature of the subject and the physiology and psychology of habit formation. It is, however, customary to place the aims at the beginning of any syllabus for the convenience of the teacher. For the same reason I am inserting them at this point. Modern curriculum builders formulate their objectives variously, but the following list is probably a fair summary of the present trend in handwriting.

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2 For a fuller discussion of the subject, *see* Joseph S. Taylor, *Supervision and Teaching of Handwriting* (Johnson Publishing Co., 1926).

The general aims of penmanship teaching are:

1. To develop sufficient skill to enable the pupil to write legibly, easily, and rapidly enough to satisfy social needs.
2. To provide the pupil with efficacious methods of practice in handwriting.
3. To provide opportunity for each individual to progress at his best rate.
4. To diagnose individual writing difficulties and provide experiences which will tend to develop in the child power to direct his own practice and to judge the success of his efforts.
5. To develop appreciation of the relation between proper position and success in writing.
6. To secure acceptable and customary arrangement and form for written work.
7. To motivate penmanship so that the pupil will use his skill in all writing situations.

Miss Mary A. Hallinan, one of my principals, puts the whole matter into a single sentence, thus: "If our pupils display correct writing habits and apply the acquired skills to their work in spelling, dictation, composition, and arithmetic, then we actually attain our educational objective."

Standards of speed. A number of investigations have been made to determine a reasonable standard of speed in writing for each of the grades. Frank N. Freeman [3] made a study of the problem in 1915. He secured specimens of handwriting from about thirty-four thousand children in fifty-six cities for speed and quality in Grades II to VIII, inclusive. While the quality advanced uniformly throughout the grades, speed showed a slower advance in grades above the fifth. By comparing the speed curve with Gilbert's curve in rate of tapping, it was found that the break occurred at the corresponding point. The diminished gain, therefore, seems to rest upon a natural foundation of slack-

[3] Frank N. Freeman, "Handwriting," *Fourteenth Yearbook* of the National Society for the Study of Education, Part I (Public School Publishing Co., 1915), pp. 61-66.

ened development of the child. It was found that seven of the schools, by superior teaching or supervision or both, were able to overcome this tendency to a slower development and to maintain a uniform growth of speed throughout the grades. Freeman therefore decided to ignore the break at the fifth year and to adopt a standard of uniform rate increase throughout the grades. As a result of this study he formulated a tentative standard of speed. In Freeman and Dougherty, *How to Teach Handwriting*,[4] however, he modified the standard, as shown in the following table:

Speed Standards Expressed in Terms of Letters per Minute

	Grades						
	II	III	IV	V	VI	VII	VIII
Freeman (1915)	36	48	56	65	72	80	90
Freeman (1923) ...	30	40	50	60	70	..	..
New York	..	..	56	63	71	80	90

New York has a scale of its own which establishes speed standards almost identical with Freeman's earlier proposal. In Freeman's latest publication he assumes that penmanship as a formal exercise will be discontinued after the sixth grade, and therefore he gives no achievement standards for the seventh and eighth grades.

Standards of quality. The measurement of quality is more complicated than that of speed because there are many scales, all different, both in the number of steps and

[4] Freeman and Dougherty, *How to Teach Handwriting* (Houghton Mifflin Co., 1923).

in the numerical designation of the steps. It is difficult to make comparisons between results obtained by different scales. In the study of the fifty-six cities cited above, Freeman used the Ayres Scale, and on the basis of the average achievement, he formulated tentative standards for quality. These he slightly modified in his later book, as shown in the following table:

QUALITY STANDARDS

After Ayres

	Grades						
	II	III	IV	V	VI	VII	VIII
Freeman (1915)	44	47	50	55	59	64	70
Freeman (1923)	35	45	50	55	60	..	..

How high a standard does the public demand? All scale values are based upon the median achievement of certain groups of children. These standards show us therefore merely what *is*, not what *ought to be*. If the level of ability in the group measured is low, the resulting standard will be low. As the average ability improves, the standard, if a new scale were devised, would rise. It is well to remember these fundamental facts about so-called scientific scales. They never give us absolute values, but merely the achievement of the group measured. Commonly, as the standards are medians, they are used to measure individual performances, and it is assumed that every pupil should attain the standard set up, although it is known that there will be wide variations of ability in any given class or grade.

L. V. Koos [5] undertook to find out what standard of

[5] L. V. Koos, "The Determination of Ultimate Standards of Quality in Handwriting for the Public Schools," *Elementary School Journal*, Vol. 18, pp. 423-446.

proficiency in penmanship the public demands in social correspondence and in certain vocations.

In the first part of the test 1,053 specimens of actual social correspondence were collected and scored. Then the judgments of 826 adults as to what they considered adequate handwriting for social correspondence were collected and tabulated. The quality of writing necessary for vocations was determined by scoring the quality of the writing of 1,127 employees in a variety of occupations.

The average quality of the 1,053 specimens of social correspondence was 49.5 on the Ayres Scale (fourth grade). Only 13.5 per cent of the writers exceeded 60 on the scale (sixth grade). Koos says that if the average is to be taken, 50 is the standard; if the point which a large majority attain is the standard, 60 should be taken as the requirement.

The 826 individuals who composed the jury for deciding what quality of handwriting is adequate, included 176 students in education, 414 teachers, and 236 nonteachers. The investigator found that the teachers had a lower standard than the laymen. Of the nonteachers (who demanded the highest standard) 60 per cent consider 60 on the Ayres Scale satisfactory for social correspondence. Koos sums up as follows: "In the light of these facts it is difficult to see why . . . a pupil should be required to spend the time necessary to learn to write better than the quality of 60. There is even considerable justification for setting the ultimate standard at 50."

The second part of the Koos study dealt with vocational demands. Handwriting specimens were secured from 1,127 employees in twenty-four vocational groups, including these among others: messengers, telegraphers, bookkeepers, salesmen, printers, bankers, insurance men, elementary teachers, high-school teachers, university teachers. Again it is assumed that the average performance of the groups is

a satisfactory standard. High-school teachers are poorer writers than elementary-school teachers, and university teachers are worse than any other vocational group tested. Perhaps this is why so many university professors have a contemptuous attitude toward handwriting. The best writers were found (quality of about 70) in the claim department, invoice department, accounting department, distribution department, and among bookkeepers, salesmen, and addressers.

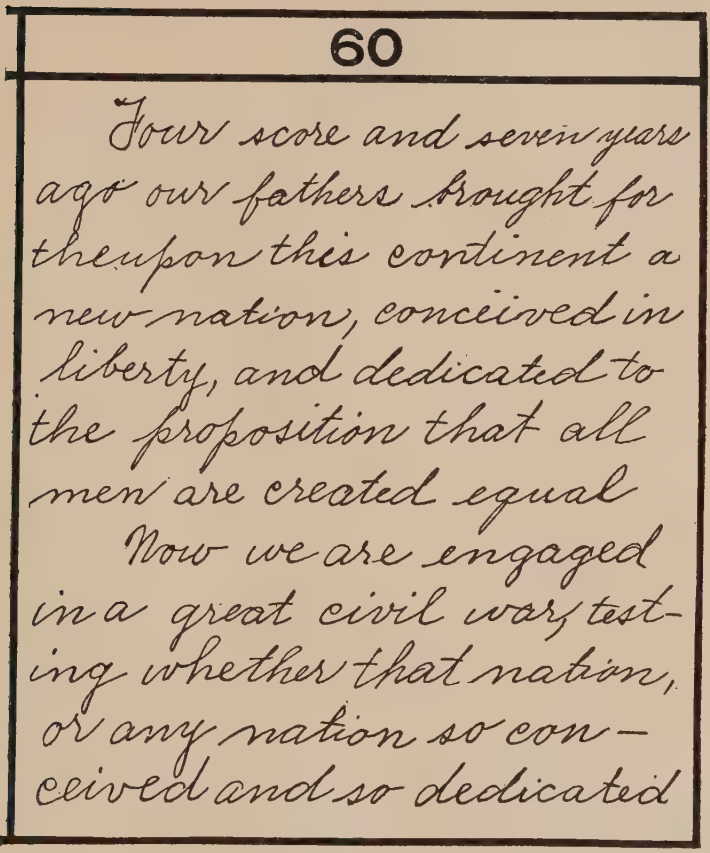
Koos concludes:

> The fact that some will go into pursuits demanding a quality better than 60 should not be offered as a justification for requiring all pupils to attain that better quality. . . . Since all should be required to learn to write as well as 60 for purely social use, to train pupils to write this quality is the task of general education; to teach some who are going into commercial or other vocations requiring a higher quality . . . to write this better quality is the task not of general but of vocational education."

To show how low a standard of excellence Koos is satisfied with, I may cite the fact that in a penmanship survey of my own district made in 1922 one school had a median of over 70 (eighth grade) on the Ayres Scale in the fifth and sixth grades. These children devoted no more time to handwriting than other schools that had a fourth-grade median in the eighth grade. They merely had the benefit of better teaching and supervision—chiefly supervision.

In further illustration of what Professor Koos accepts as a standard for social purposes I am presenting herewith a specimen scored 60 on the Ayres Scale.

The course of study. The author's investigation of the penmanship situation in fifty cities has disclosed the fact that the majority of communities apparently have no course of study in handwriting. Many cities use copyrighted material, like the Zaner and Palmer systems, in lieu of a syllabus. Others send out periodic instructions which


60
Four score and seven years
ago our fathers brought for
theupon this continent a
new nation, conceived in
liberty, and dedicated to
the proposition that all
men are created equal
Now we are engaged
in a great civil war, test-
ing whether that nation,
or any nation so con-
ceived and so dedicated

SPECIMEN OF HANDWRITING THAT IS SCORED 60 ON THE AYRES SCALE

teachers follow in the absence of a printed course. In at least three states—probably many more—the state department of education has issued a manual for the guidance of all teachers of handwriting. The three states whose manuals the writer has examined are New Jersey, Massachusetts, and Ohio. Among the cities that report courses of study

are Chattanooga, Columbus, O., Philadelphia, Pittsburgh, Harrisburg, Hartford, Houston, Lawrence, New Haven, New York, and St. Louis.

Little progress can be expected in handwriting unless some graded syllabus or plan is in the hands of teachers. This is necessary to set attainable goals, to facilitate systematic supervision with check up, and to apply standards of achievement. If there are still communities that have neither syllabus nor expert supervisors of handwriting, the chaotic condition of the writing can readily be inferred. At least two of the largest cities of the United States were in this situation only a few years ago.

Principles underlying a course of study in handwriting. The following principles of curriculum building are especially applicable to penmanship:[6]

1. From the educational point of view, childhood and adulthood together form one continuous development. Each stage should leave the individual best prepared to live the next stage and, through this, all others. The penmanship syllabus, therefore, should be divided into easy and natural steps, and should lead to a final product which will meet the adult demands for rapid, easy, and legible handwriting.

2. Curriculum making includes three technical tasks of major importance: (*a*) the determination of the ultimate and immediate objectives of education; (*b*) the experimental discovery of appropriate child activities and other materials of instruction; and (*c*) the discovery of the most effective modes of selecting and organizing the activities of the respective grades. The aims of penmanship teach-

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[6] For a general discussion of principles of curriculum construction *see* the *Twenty-sixth Yearbook* of the National Society for the Study of Education, Part II, pp. 11-28. The committee that formulated that statement on "Foundations of Curriculum Making" was composed of twelve eminent American educators.

ing have already been stated in the preceding section. (See p. 194.)

3. The materials of the curriculum should be organized so as to produce knowledge, skills, and appreciations necessary to the common life of our people. No definite line can be drawn between general and vocational education. It is not the business of the elementary school to teach specialized needs of handwriting, such, for example, as might be required by the bookkeeper, the librarian, or the secretary.

4. Learning, for the educator, is not satisfactory until it issues in a new way of behavior. The final test of learning is the emergence of appropriate conduct. The method by which the learner works out his experiences, enterprises, and exercises should call out maximal self-direction and assumption of responsibility. The penmanship lessons should be so organized that the pupil can manage and measure the success of a large part of the necessary practice.

5. One of the best forms of curriculum control is measurement by means of uniform examinations and standardized tests. The committee referred to above condemns emphatically the evaluation of the product of educational effort solely by means of subject-matter types of examination. Fortunately, numerous penmanship scales are available for the accurate measurement of handwriting.

6. The acceptance of the foregoing principles in curriculum making imposes a new duty upon teacher-training institutions. They must keep their students in touch with the latest developments in curriculum making, because the curriculum can be changed no more rapidly than the teachers can do their proper part. In New York every graduate of the three training schools must qualify in the kind of writing she is required to teach in the grades.

7. The course of study should suggest the approximate time to be spent on each subunit. The following table gives the number of minutes a week assigned to handwriting by

49 cities of the United States[7] and by New York City in its recently revised Course of Study in Handwriting:

TIME TABLE

Years	1	2	3	4	5	6	7	8
49 Cities	75	75	75	75	75	75	60	60
New York ...	75	75	75	75	75	75		

A COURSE OF STUDY IN HANDWRITING[8]

Grade I

First term:

Teach small letters, i,u,t,e,l,a,d,o,c,w,s,m,n; capitals A,O. Apply in easy words and sentences. Teach the digits. Use blackboard in all writing. Small letters at least three inches high; capitals twice as high.

Second term:

Teach small letters h,f,k,g,q,y,z,r,v,x,j,p; capitals C,I,M,N,S. Apply in easy words and sentences. Teach pupil to write his first name. Review work of preceding term. Pupil to be able to name all letters taught and to write them from dictation. Blackboard writing continued. Introduce writing at desk with pencil. Ruled paper with lines one inch apart; small letters to fill half the space; capitals and loop letters to fill nearly the whole space.

Grade II

First term:

Teach general movement exercises 1,2,3,4; capitals J,W,D,T,F. Apply these letters in easy words and sentences. Teach pupil to write his full name; teach the date. Review small letters m,n,r,t,e,l,b,a,d,o,c,n. Review capitals A,C,I,M,N,S. Half-inch

[7] Fred C. Ayer, *Studies in Administrative Research*, Vol. 2, Department of Research, Seattle Public Schools.

[8] The sequence of topics in this course is substantially that agreed upon by the New York revision committee on handwriting, of which the writer was a member.

ruled paper, small letters to fill half the space, capitals and loop letters to fill nearly the whole space.

Second term:

Movement exercises 1,2,3,4; capitals E.P.R.B. Apply these letters to easy words and sentences. Teach the pupil to write the name of his class. Review signature and date. Review small letters i,u,h,f,k,g,q,y,z,s,p. Review capitals J,W,D,T,F,A, O,C. Paper ruled three-eighths of an inch, small letters to fill half the space, capitals and loop letters nearly the whole space. Introduce writing with pen and ink.

Movement Exercises

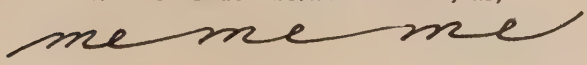
No oval and push-pull exercises are prescribed. The only formal drills recommended are the following: [9]

1. The over curve.

2. The under curve.

3. The "slide" between letters; as,

4. The "slide" between words; as,



Grade III

First term:

Movement exercises 1,2,3,4; special drill on difficult parts of letters; capitals H,Q,Y,L,G. Apply these letters in easy words and sentences. Review small letters r,v,x,c,l,b,k,a,d,i,u,j,w; review capitals E,P,R,B,M,N,I. Continue practice on pupil's

[9] Freeman and Dougherty, *op. cit.*, p. 37.

name. Review digits. Teach $. Practice small letters in groups; as,

Make application of forearm movement. Ruling three-eighths of an inch, small letters to occupy half the space, capitals and loop letters nearly the whole space.

Second term:

Movement exercises 1,2,3,4; special drill on difficult parts of letters; capitals K,U,V,X,Z. Apply these letters in easy words and sentences. Review small letters e,c,m,n,s,p,t,h,f,g,y; review capitals H,Q,Y,L,S,G,D. Continue practice on pupil's name; practice period and comma; review digits and $. Practice small letters in groups; as,

Ruling three-eighths of an inch, small letters to occupy half of the space, capitals and loop letters nearly the whole of it. Continue practice in forearm movement.

Grade IV

First term:

Movement exercises 1,2,3,4; special drills on difficult parts of letters. Teach letter combinations; as, *on, an, ba, wi.* Apply letters and letter combinations in easy words and sentences; correlate with spelling and composition. Practice interrogation point. Review small letters, r,v,x,z,j,s,m,n; review capitals K,U,V,X,Z,T,F; review digits and $. Ruling three-eighths of an inch, small letters to occupy about one-third of space, capitals and loop letters almost the whole space. Continue practice in forearm movement. Use scale.

Second term:

Movement exercises 1,2,3,4; special drill on difficult parts of letters. Teach letter combinations; as, *as, qu, ju, gh, wh;* apply letters and letter combinations in easy words and sentences. Correlate writing with spelling and compositions. Review small letters i,u,t,p,h,f; review capitals A,O,C,R,B,I,J,L,G. Review signature, class, date, name of school. Practice period, comma, interrogation point, question mark, $. Ruling one-third inch,

small letters to occupy one-third of the space, capitals and loop letters nearly the whole of it. Continue practice in forearm movement. Use scale.

Grade V

First term:

Movement exercises 1,2,3,4; special drill on difficult parts of letters; letter combinations as, *br, wr, ly, ve.* Apply letters and letter combinations in words, sentences, and short paragraphs, correlating writing with other subjects. Review small letters a,d,q,o,c,w,s,e,l,b; review capitals M,N,H,W,O,P,R,B; review punctuation and digits. Teach @. Emphasize forearm movement. Use scale.

Second term:

Movement exercises, 1,2,3,4; special drill on difficult parts of letters. Letter combinations as, *wn, on, un, da.* Apply letters and combinations in words, sentences, and short paragraphs, correlating writing with other subjects. Review small letters m,n,h,f,k,g; review capitals Y,S,T,F,D,E. Practice headings and conclusions of social correspondence, and addressing envelopes. Review punctuation marks, digits, @. Emphasize forearm movement. Use scale.

Grade VI

First term:

Movement exercises 1,2,3,4; special drill on difficult parts of letters. Apply letters in words, sentences, and paragraphs, correlating writing with other subjects. Review small letters e,l,b,h, f,k,j,p,y,r,v,x; review capitals A,O,C,E,P,R,B,I,J,M,N,H,W. Practice letter forms required in composition syllables. Review digits. Teach %, a/c. Emphasize forearm movement. Use scale.

Second term:

Movement exercises 1,2,3,4; special drill on difficult parts of letters. Review small letters a,d,g,q,e,c,m,n,i,u,t,w,s; review capitals L,G,S,T,F,D,K,Q,U,V,Y,Z,X. Practice on unruled paper. Apply letters in words, sentences, and paragraphs, correlating writing with other subjects. Review correspondence forms, punctuation, digits. Emphasize forearm movement. Use scale.

Hospital classes. The course of study submitted in this chapter, in deference to what seems to be the prevailing opinion of modern educators, stops with the sixth grade. This is done, however, with the reservation that pupils in the junior high-school grades should have their handwriting scaled from time to time, and those who do not maintain the sixth-grade standard should be assigned to *hospital classes* and required to practice until they are up to grade again.

Manuscript writing. A new form of penmanship called *manuscript writing* has recently come into vogue in certain English and American schools. Thus far it has found favor chiefly in private institutions. It is really printing, based on the circle and straight line. The claims set up for it are *ease, legibility, beauty,* and *speed.* But very little, if any, experimental evidence concerning its value is available. The pros and cons are still in the realm of opinion. Our New York Penmanship Committee made a thorough investigation of its merits and decided not to recommend it for the present because we cannot afford to use a million school children as material for experimentation. We have a letter from an official of the London Board of Education in which we are advised that manuscript writing is in use in some public and private primary schools of England, but that educators and the lay public are of the opinion that after the fourth grade cursive script should be taught.[10]

[10] A brief in behalf of manuscript writing may be found in the "Report of the National Association of Penmanship Teachers and Supervisors for 1927," Secretary Arthur G. Skeeles, 270 E. State Street, Columbus, Ohio. It is an address by Miss Frances M. Moore, author of *Handwriting with the Broad-Edge Pen* (Ginn & Co.), eight books; *see also* Ala M. Stone and Ethel I. Smalley, *Manuscript: A Handwriting Based on Early Models*, Books 1 and 2 (Charles Scribner's Sons). H. A. Rankin, *From Script to Cursive* (Isaac Pitman & Sons). A method by which print writing may be used as basis for the ordinary cursive style.

Principles and methods of teaching handwriting. *Qualified teachers.* One of the first steps in adequate supervision of handwriting is a provision that every teacher must qualify in the kind of writing she is expected to teach. This is so nearly self-evident that one ought to apologize for saying it. You would not expect the blind to lead the blind, or a teacher who doesn't know the multiplication table to give lessons in mathematics, or one who is ignorant of geography or history to specialize in these subjects. Yet that is just what we have been doing in penmanship. Those communities are right which insist that every teacher appointed to the grades must be an expert writer. It is absurd to expect the children to write a good hand if the teachers scribble on the blackboard. There are hundreds of rooms in many cities where this condition exists and then people wonder why the children's handwriting is poor.

It is not difficult for teachers in the service to acquire skill in penmanship. Several well-known publishing houses give competent instruction by mail. Thousands of teachers all over the United States have become expert in this way. Many summer schools offer instruction in handwriting. In some cities the training schools for teachers require all their graduates to become expert writers. Some years ago New York organized penmanship classes in the evening high schools for teachers in the service. In short, where there is a will, there is a way. The first requirement is a recognition of the need of skill, and the proper stimulus from the head of the school system. The teachers will respond if they know that a service is expected of them and the urge is tactfully and sympathetically applied. That a teacher can change her handwriting late in life has been proved in thousands of cases.

What is writing? In an effort to improve handwriting the supervisor's chief concern is the improvement of the quality of instruction. Therefore, a treatise on supervision

cannot ignore methods of teaching. In the brief space available here, however, it is possible to treat the subject in outline only, and even then the discussion must be confined to certain broad and fundamental aspects of method in penmanship. Writing is a psychophysical process. It is difficult to make a clear distinction between the physiological and psychological factors, since any act of writing involves both. Essentially, learning to write is a process of habit formation, which begins as an act of conscious control and by practice is reduced to a stage of automatism. Judd [11] has defined writing as "a coördinated movement which has to be developed through trial after trial, with consciousness directed, not upon the movement itself, but on the visual images which appear as results of the movement. What one is thinking of is not the movement at all, but visual images."

There is a controversy on this statement. Reagan [12] agrees with Judd: "In general, the teacher should seek to focus the learner's attention upon the objective results of movements rather than upon the movements themselves." Applied to writing, this seems to favor the view that the *product* is more important than the *process,* and, inferentially, that *form* should be emphasized before *movement.* Breitweiser,[13] on the other hand, says:

> Usually the learner concentrates his attention too tenaciously on the sensory objective to be obtained by the action. This goal is fixed and if the attention is constantly focused on the objective, like the written word or letter as it appears in the end, much time is wasted, for there is involved the complete

[11] Charles H. Judd, *Genetic Psychology for Teachers* (D. Appleton & Co., 1903).

[12] George William Reagan, "Principles Relating to the Engendering of Specific Habits," University of Illinois Bulletin No. 5, Vol. 23, Oct. 5, 1925.

[13] J. V. Breitweiser, *Proceedings,* National Education Association, 1923, p. 558.

sensory recognition reaction which can add nothing in the way of efficiency. This short circuiting was first thought of when we took the eyes of the student away from the keyboard and the written copy. My experiments in reaction time showed that we get the quickest reactions by attending to the motor set or attitude, or, in other words, that we prepare the path of discharge or drainage of mental energy rather than focusing on end effects.

It is true that teachers of typewriting now use machines with blank keys, and the pupil is trained to keep his eyes off the writing or to cover it. He is guided entirely by kinæsthetic ideas of movement; that is, by the *feel* of the muscular set or coördination. Piano players and other instrumentalists must learn to hit the right keys without watching the fingers, for otherwise they could not play music at sight. Some golf teachers keep the pupil for weeks on practicing strokes without a ball. The theory seems to be: "You hit it right, and you need not worry about the ball." On the contrary, if you think too much about where the ball is going, you become self-conscious and disorganize the movement.

Among writing masters we have two classes. One says: "In the beginning, work for movement. Never mind the form. It will come later." The other says: "Form is of the first importance. Writing is intended to be read. Legibility first; speed later."

Since experimentalists and teachers are on both sides of the question, perhaps it were better for the by-stander to keep the middle of the road, and advise his friends to take their choice.

Habit-formation. E. E. White used to say that education has three ends: The production of knowledge, power, and skill. The illiterate adult who has just learned to write his name has *knowledge:* he knows now how writing is done, what materials are required, and how it feels to write. If he keeps up his practice until he can conduct social and

business correspondence and make necessary records, he has acquired *power*. If he continues his effort until he has learned to write with ease, fluency, beauty, then he has *skill*. Should the public school stop at power or go on to skill? Those who advise us that the fourth-grade standard is sufficient are satisfied with power. Those who believe that sixth-grade ability or better should be the goal, desire practice to the point of skill.

In any case, penmanship teaching or learning is just habit-formation. Therefore the fundamental question for the teacher is, What are the laws of habit? Fortunately considerable tested knowledge of the subject is available. A very brief summary of it is herewith presented.

Thorndike[14] has attempted to condense all the laws of habit into three: *use, effect,* and *readiness.*

1. The Law of Use. When any specific reaction has been chosen or *used,* then this one will be more likely than any other to occur on a future experience of the same situation, other things being equal. This shows the importance of teaching the child from the beginning the form and movement you expect him finally to achieve. James expresses the same idea in his second law of habit: *"Never suffer an exception to occur till the new habit is securely rooted in your life."* Yet when children write their exercises in school or at home no attention is commonly paid to such things as proper position, penholding, slant of paper, movement, or correct form. In the upper grades the pupil spends three or four times as much time on this applied writing, in which every rule is violated, as he does on formal penmanship lessons. Is it any wonder that progress in writing is slow?

2. The Law of Effect. Thorndike in his discussion on the Law of Effect states the following:

[14] Edward L. Thorndike, *Education—A First Book* (Macmillan Co., 1912).

Other things being equal, the greater the satisfyingness of the state of affairs which accompanies or follows a given response to a certain situation, the more likely that response is to be made to that situation in the future. Conversely the greater the discomfort or annoyingness of the state of affairs which comes with or after a response to a situation, the more likely that response is *not* to be made to that situation in the future.

Harry Varden[15] in his book, *The Gist of Golf,* says:

I recommend a brassie at the start, not for playing shots from the turf, but for learning how to drive. It has a stiffer shaft than the driver, and, as a result, there is a greater chance of keeping it under control. You want a little loft on the face of the club, so as to help in getting the ball into the air; this element of loft gives confidence to the novice, and even if sometimes there is luck in the circumstance of his making the ball rise, the *encouragement* that he derives from the feat is worth a lot to him.

Similarly, certain ways of sitting, penholding, shifting the paper, using muscles of the forearm and fingers, bring the most satisfying results in penmanship, hence the pupil gradually adopts these ways and makes them habitual.

3. The Law of Readiness. The third law is the law of readiness. The child's nervous and mental development is such that his capacity for movement and comprehension functions at certain stages, some of which we think we have discovered. We probably do not know as much as we pretend. For instance, Burk,[16] in 1898, informed us that the order of development in a child's muscular system is "from the fundamental to the accessory." This would mean that penmanship should be confined in the lowest grades to whole-arm movement. But Freeman,[17] in 1914,

[15] Harry Varden, *The Gist of Golf* (George H. Doran Co., 1922) p. 13.

[16] Frederic Burk, "From Fundamental to Accessory in the Development of the Nervous System and Movement," *Pedagogical Seminary,* Vol. 6 (1898).

[17] Frank N. Freeman, *The Teaching of Handwriting* (Houghton Mifflin Co., 1914).

after elaborate experiments in handwriting, denies that you can describe "the child's general capacity in movement adequately in terms of the fundamental-accessory theory."

School Life. The organ of the United States Bureau of Education published a report recently of the "Reading Readiness Committee" of the International Kindergarten Union, in which it is stated that, of 560 first-grade teachers consulted, 10 per cent said some of the children are not ready to learn reading when they come to school. I asked eighteen of my principals and forty of my first-grade teachers for an opinion on this point. The principals agreed with the Kindergarten Union's report, that 10 per cent of our children are too immature to learn reading when they come to school. The average estimate of the forty teachers is 9.5 per cent.

I have published an inquiry [18] which indicates that first-grade children are not ready to learn formal arithmetic, and that if you postpone number work until the second year, children will easily make up in that year all the first-year arithmetic in addition to learning the work of their own grades, and in a test will surpass the children who have had number work for two years.

Some educators think writing is too difficult for children of the first grade and that the subject should be postponed to the second or third year. This opinion, however, awaits experimental proof.

The teacher's task. In view of the laws of habit-formation, what is the duty of the teacher? Certain corollaries are easily deducible from the three fundamental laws which will serve as rules for the writing teacher. For example:

1. She should devise and assign appropriate learning exercises.
2. She should stimulate the pupil to engage in these.

[18] Joseph S. Taylor, "Omitting Arithmetic in the First Year," *Educational Administration and Supervision*, February, 1916.

3. She should give the pupil general rules for doing the exercises.
4. She should evaluate some of the pupil's performances (diagnosis).
5. She should assign supplementary exercises to correct deficiencies disclosed by diagnosis.
6. "The teacher should not ask the learner to acquire a habit until near the time for its use." [19] Effort may be saved by learning material while using it. This bears on the question of *abstract writing drills on ovals and straight lines.*
7. "When a group or succession of related habits is to be formed, the teacher should assign the exercises . . . in a psychological rather than a logical order." The old writing systems began by teaching the elements of letters, then letters, then words, then sentences and paragraphs. This is the logical order. The way to learn to write is to *write.* In music the logical order keeps the pupil indefinitely on scales and finger exercises. The psychological method motivates practice by giving the child "a piece" to play.
8. "The teacher should endeavor to get the learner to understand clearly just what response is to be habituated." In learning to write the pupil is not able to make the correct response at first, but gains skill by practice, in which trial and accidental success play an important part. But he should have clear visual and motor images of the form of movement to be learned. This principle points, in my judgment, to the use of a tracing copy in the beginning.
9. "The teacher should employ procedures and devices which will induce the learner to maintain an attitude of interest and attention." This sets up the problem of developing a permanent or enduring motivation. It may be done in various ways, many of which are enumerated in the author's *Supervision and Teaching of Handwriting.*[20] The use of a writing scale and exempting a pupil from formal

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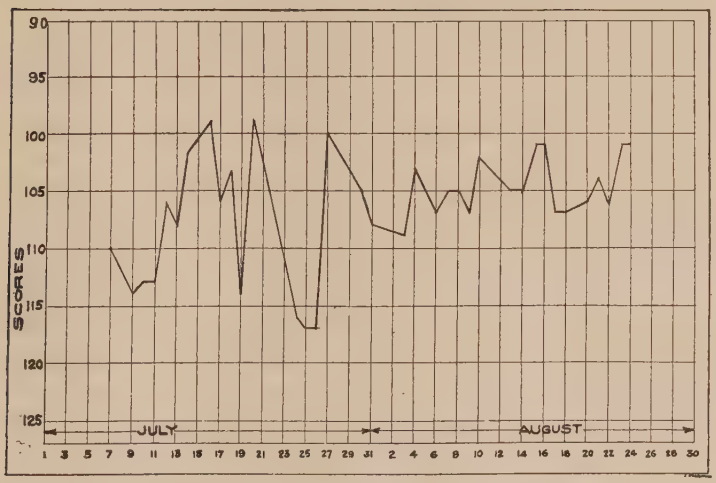
[19] The quotations in this and following paragraphs are taken from George William Reagan, "Principles Relating to the Engendering of Specific Habits," University of Illinois Bulletin No. 5, Vol. 23, Oct. 5, 1925.

[20] Joseph S. Taylor, *Supervision and Teaching of Handwriting* (Johnson Publishing Co., 1926).

drill after he has attained a certain level of achievement is a powerful motive.

10. While "trial and accidental success play a large part in motor learning, the teacher may shorten the learning process by suggesting better methods." The single suggestion, "Keep your eye on the ball," will, in golf, eliminate a large proportion of failure. In penmanship the suggestion, "Writing position," will have a similar effect.
11. "The teacher should endeavor to engender habits in the way in which they will be used." This would discredit *oral* spelling and written spelling in *columns,* because in practice we spell only in written discourse. You will recall Rebecca's remarks in *Rebecca of Sunnybrook Farm:* "Aunt J. has given me a dictionary to look up all the hard words in it. It takes a good deal of time, and I am glad people can talk without stopping to spell. It is much easier to talk than write and much more fun." Similarly, the principle would discredit abstract penmanmanship drills divorced from actual writing of letters, words, and sentences.
12. "The teacher should avoid engendering superfluous habits." Examples: Looking at the fingers in typewriting and piano playing. Flourishes in penmanship would be banned.
13. "The teacher should insist upon absolute accuracy in practice. Accuracy first, speed afterwards." This seems to point to the correct formation of letters before speed exercises are introduced. It does not necessarily mean *finger movement* at first, arm movement later. That is another question.
14. "In the case of a series of responses to be automatized, the teacher should be careful to include each member of the series in the exercises for practice." In handwriting this means that not only must every letter be automatized, but all the usual combinations also; and a plan or syllabus must be carefully charted so as to provide sufficient drill and review of every step.
15. "The teacher should constantly bear in mind that pleasant feelings facilitate progress in learning." This is the psychology of success. Give the pupil work he can do, and encourage him when he succeeds. It is a phase of Thorndike's second law and is a part of *motivation.*

The practice curve. It may help to keep up the courage of teachers and children to call their attention to a law of habit-formation which is known as the "practice curve." When we undertake a new muscular coördination like playing golf or driving a car or learning to write, the rate of learning at the outset is often surprisingly rapid. Then it progresses more slowly. There are periods when there is no progress, and when there is even retrogression. This is



THE PRACTICE CURVE OF DAILY GOLF SCORES

where the learner becomes discouraged. If he persists, however, these periods of no progress will give place to periods of rapid growth. The places in the curve representing the stationary or retrogressive periods are called "plateaus." These are critical times for the learner, because they undermine his courage. He is apt to say, "What's the use? I'll *never* learn this thing." Science has not yet determined whether plateaus of learning are part of the order of nature, or whether they are due to poor teaching. In either case we should forewarn the pupil

and encourage him to keep on, because plateaus of practice will as surely be followed by rapid improvement as sunshine follows rain.

Length of practice period. "A thirty-minute practice period yields greater returns," says Gates,[21] "than longer or shorter periods. The sixty-minute period is especially unproductive. . . . Other investigations of memorizing, archery, typewriting, and arithmetic have shown . . . that periods longer than thirty minutes are relatively unproductive, as are very short periods of ten minutes or less." Whipple [22] makes a remark similar, but less definite. "Make the duration of your periods of study long enough to utilize 'warming-up,' but not so long as to suffer from weariness or fatigue."

Division of the class into groups. The recent movement to adapt the curriculum to the ability of the child has resulted in the classification of pupils within a class or grade into two or three penmanship groups for teaching purposes. Supervisors and teachers of handwriting have found such division an advantage. The writer, when he was a grade teacher thirty years ago, adopted this plan. The best writers were used as monitors to assist the poorest, while the teacher kept his eyes on all the groups and gave general and individual assistance as needed. In this way he accomplished far more during a writing period than he could do by teaching the class as a unit.

In order to ascertain current practice in this matter I wrote to three experts and received courteous and emphatic replies in each case. A. N. Palmer reports that his own experience and that of his staff of instructors confirm the value of class division in penmanship teaching for all

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[21] Arthur I. Gates, *Psychology for Students of Education* (Macmillan Co., 1924).

[22] Guy M. Whipple, *How to Study Effectively* (Public School Publishing Co., 1916).

grades. Miss Lena A. Shaw of Detroit reports that "every bit of evidence shows a decided need for varied instruction even in the third and fourth grades as well as in the fifth and sixth." A typical 4A class cited by Miss Shaw shows a range of handwriting ability extending from 2B to 6A. "One can easily see how absurd it would be to handle this particular grade with the same type and level of instruction." Equally emphatic is Miss Bertha A. Connor of Boston. "Such an arrangement," she says, "I not only approve, but strongly recommend from the time penmanship is taught in the first grade until it is completed in the Normal School."

In my district survey involving 15,000 children, the score for form in the 4B grade had a range of fifty points on the scale, covering grades from about 2B to 8B. The norm for 8B on our scale is 65, and some of the 4B children had a score of 74! In 8B the range extended from 34 to 90, or from about 3B to a point far beyond 8B. These ranges are even greater than that reported by Miss Shaw. In view of these enormous differences in writing ability shown by children of a single grade or class, the argument for the group method of teaching seems to be conclusive.

Equipment. Experiments have shown, as well as the common experience of teachers, that writing is largely affected by external factors (pen, ink, paper, desk, seat) and by individual variation dependent on subjective conditions (mood, emotional excitement, etc.) It is the duty of the teacher and the supervisor to provide adequate materials and proper emotional conditions for effective learning during the writing period.

The desk and seat should be adjustable. The ideal desk would be adjustable for height, slant, and plus and minus distance. When the pupil is seated, his thigh should be at right angles to the lower part of his leg and the feet should be flat on the floor.

Position. The body should face squarely the middle of the desk and bend slightly forward at the hips. Both forearms should be well up on the desk, the left holding the paper, the right wrist raised and inclined to the right not more than 45°.[23]

The writing hand should be supported on the third and fourth fingers. The wrist should not be tilted more than 45°. The forearm of the right hand should be perpendicular to the line of writing. The pen should be grasped lightly and in such a way that the forefinger is below the thumb and at least one inch above the point of the pen.[24]

Shifting the paper. It is necessary that the pupil be taught to move the paper upward after every few lines as the writing progresses down the page, and to move the paper to the left as the writing progresses across the page. The shifting is done with the left hand, while the right arm is held in correct position. Writing masters may differ on the best way of making this adjustment.

The slant. Cloyd N. McAllister [25] has shown that a slant of 48° permits the most rapid writing. The greater the slant to the right the more rapid will be the writing, other things being equal. A slant of 75° permits legible writing, but as the angle decreases below 70° the legibility rapidly declines. A basic line is desirable to guide the eye across the page, but additional lines cause the child to pay more attention to spacing and height than to form and movement.

The blackboard. The best authorities advise blackboard writing exclusively in the beginning and a frequent use of it at all stages. The pupil is to stand directly facing the board, within arm's reach of it. He should hold the chalk

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[23] Frank N. Freeman, "Scientific Evidence on Handwriting Movement," *Journal of Educational Psychology*, Vol. 12, p. 253.

[24] *Ibid.*

[25] Cloyd N. McAllister, "Researches on Movement in Writing," Studies from Yale Psychological Laboratory, Vol. 8, 1900, p. 21.

between the thumb and the first and second fingers, with the chalk pointing toward the palm. The writing will then be done with the edge of the chalk rather than with the tip. A half length piece of chalk is better than a full length. The pupil should walk along as he writes and avoid frequent erasing. It is needless to add that the teacher's blackboard writing should be good enough to serve as a model for the pupil.

Pen and ink. "I use large pencils in the first grade and pen and ink in the second and third grades," writes Miss Garvey of Lowell. "However, as soon as I can have ink wells placed in first-grade desks, I shall use ink in all grades." Mr. Palmer thinks ink should be used in all grades. In St. Louis the pencil is used during the first three years. We are again in the domain of opinion. There is no "tested thought" available to prove anything about ink. You pay your money and take your choice!

The ink should be jet black or blue black and flow freely. This requires careful attention on the part of the teacher. Ink wells should be kept covered and cleaned out and refilled frequently. No pupil can write well with either *paste* or *water*.

When shall writing in ink begin? Writing teachers differ, as we have just seen. My own experience teaches that the mechanical difficulties of handling ink in the first grade are very great. The course in this chapter introduces ink in the second half of the second year. (See p. 203.) The pencil used in the early grades should be the large size, sometimes called by manufacturers the "beginner's pencil."

Movement. Experiment and common observation show that writing is a combination of whole-arm, forearm, wrist, and finger movements. It is not possible to eliminate entirely finger movement, even in so-called "muscular movement writing" (a term widely used to denote forearm and

wrist movements). "Good writers," says Freeman, "use more arm movement than poor writers, although finger movement is also employed by the best writers." [26]

The measurement of handwriting. By common consent, the writing scale is indispensable to the supervisor of handwriting. In Flint, Mich., the writing is scored once a month. In Detroit the pupils are taught to use the scale; the teacher uses it to "define her task"; the principal uses it to make graphs for determining progress; the supervisor uses it to measure the effectiveness of her work. In Lowell three samples are taken and filed each year of every pupil. In Los Angeles the scale is placed in each room. In South Bend and Scranton the entire school system is scaled twice a year. In New York City every teacher is provided with a scale, and some principals have the writing scored once a month.

Rhythm. H. W. Nutt [27] has investigated rhythm as related to penmanship. He found that rhythmic movement increases naturally with age. He found no correlation between quality and rhythm, but a decided correlation between speed and rhythm. His researches show that an extreme degree of rhythm is probably unfavorable to form. Paul V. West's [28] investigation indicates that the arm is more easily adapted to rhythmic movement than the fingers; that poor adult writers are less accurate when a rhythmic beat is imposed than good ones; that a rhythmic guide in penmanship must be carefully supervised; and that rhythm is not so well adapted to the writing of words as it is to simple movement drills.

Rhythm is secured by counts or by cue words. It should be used in the early grades to secure ease and rapidity. In

[26] Frank N. Freeman, *loc. cit.*

[27] H. W. Nutt, "Rhythm in Handwriting," *Elementary School Journal*, Vol. 17, p. 432.

[28] Paul V. West, "The Relation of Rhythm to the Handwriting Movement," *Journal of Educational Psychology*, Vol. 13, p. 438.

later grades it may be dispensed with since it increases naturally with age.

Penmanship has the distinction of having produced the first standardized scale for the measurement of achievement in school. To Edward L. Thorndike belongs the credit of having formulated the principles underlying a writing scale, and of having actually constructed the first scale in accordance with those principles. This epoch-making achievement occurred in 1910. To-day we have scores of scales to measure various kinds of knowledge and skill. In penmanship there are at least a dozen scales, a few of which will be described.

The Thorndike Scale.[29] Thorndike laid down the rule that a scale for Grades V to VIII, inclusive, should have about ten qualities, each differing from the next by equal steps. He calculated that one would need several thousand specimens of each kind of sample, each scored by two hundred judges. This would mean roughly four thousand hours of labor. Hence, his scale is confessedly imperfect, as it did not meet these exacting conditions of scientific accuracy. It is therefore labeled a "preliminary scale," and it measures "general merit" only; namely, legibility and regularity.

The Ayres Scale.[30] Ayres constructed a scale that had but eight degrees of quality for Grades II to VIII, inclusive. The numerical values assigned to degrees of merit are 20, 30, 40, etc., up to 90. Each step of the scale is represented by three specimens; namely, vertical, semislant, and full slant. A later scale of like nature was developed to measure the handwriting of adults. A still later scale

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[29] Edward L. Thorndike, "Handwriting," *Teachers College Record*, Vol. 2, 1910.

[30] Leonard P. Ayres, Scale for Measuring the Quality of Handwriting of School Children, Bulletin No. 113, Division of Education. Russell Sage Foundation.

(1917), called the "Gettysburg Edition,"[31] has only one specimen for each step. It furnishes standards for speed and quality for Grades V to VIII inclusive.

Johnson and Stone Scale.[32] This is similar to the Thorndike and Ayres scales, but is more analytic. Each specimen of the scale is accompanied by a criticism which shows what is wrong with it. The items of criticism include letter formation, uniformity of slant, alignment, spacing, quality of line, size, and degree of slant.

Breed and Downs Scale.[33] This scale was made for local use in Highland Park, Michigan, by scoring specimens with the Thorndike Scale, and then selecting specimens for a five-step scale for Grades III A to VI A. It includes also standards for speed.

The Freeman Scale.[34] This scale is different from all the preceding scales in that it is really five scales in one. It measures uniformity of slant, uniformity of alignment, quality of line, letter formation, spacing.

The New York Scale.[35] Clyde C. Lister and Garry C. Myers are the authors of this scale. Like the Freeman scale it is analytic. It measures four qualities: form, movement, spacing, and speed. Under *form* are considered letter formation, uniformity of size, and correct slant. *Movement* includes quality of line, whether heavy, tremulous, or broken. Under *spacing* the writing is judged as to uniformity of space between letters, between parts of letters,

[31] Leonard P. Ayres, Scale for Measuring the Quality of Handwriting of Adults, Bulletin No. E-138, Division of Education, Russell Sage Foundation.

[32] Johnson and Stone, "Measuring the Quality of Handwriting," *Elementary School Journal*, Feb., 1916.

[33] Breed and Downs, "An Application and Critique of the Ayres Handwriting Scale," *School and Society*, Vol. 2 (1915), p. 639.

[34] Frank N. Freeman, An Analytical Scale for Judging Handwriting, *Elementary School Journal*, Vol. 15 (1915).

[35] Lister and Myers, New York Penmanship Scale, Board of Education.

and between words. It applies to Grades IV to VIII, inclusive.

Gray's Score Card.[36] One of the most useful devices for diagnostic measurement of handwriting is Gray's Score Card, which is herewith presented. Some of the scales measure general quality only, but do not reveal the particular defects which render the writing unsatisfactory. It is a sound principle of teaching that the child should surmount one difficulty at a time. And when he is told that his writing is poor, he is entitled to know just in what respects he has failed. Also the teacher, in prescribing remedies, must know in detail what factors of the complex writing process need stressing. Gray's card gives all this necessary information. It also weighs the items according to their relative importance.

GRAY'S SCORE CARD

	Perfect Score
1. Heaviness	3
2. Slant	5
Uniformity	
Mixed	
3. Size	7
Uniformity	
Too large	
Too small	
4. Alignment	8
5. Spacing of lines	9
Uniformity	
Too close	
Too far apart	
6. Spacing of words	11
Uniformity	
Too close	
Too far apart	

[36] C. T. Gray, A Score Card for Measuring Handwriting, University of Texas Bulletin No. 37, July, 1915.

7. Spacing of letters		18
Uniformity		
Too close		
Too far apart		
8. Neatness		13
Blotches		
Carelessness		
9. Formation of letters		26
General form	8	
Smoothness	6	
Letters not closed	5	
Parts omitted	5	
Parts added	2	
		100

Relative value of scales. It is not easy to say which of these scales is most useful. Different scales serve different purposes. If you wish to analyze in detail the merit of a pupil's handwriting, you will use the Freeman Scale, the New York Scale, or Gray's Score Card. If you desire to measure merely the general or total achievement in handwriting for survey purposes you employ a scale like that of Ayres or Thorndike. Several attempts have been made to test the reliability of the several scales. Pintner thinks the Thorndike Scale is better than the Ayres Scale while Starch finds them of equal merit, and Freeman believes the Ayres Scale to be superior to the Thorndike Scale.

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CHAPTER VI

THE SUPERVISION OF LANGUAGE

BY WALTER BARNES

Head of English Department and Dean of Instruction, State Normal School, Fairmont, West Virginia

The aims of English. Language is a mode of conduct. Specifically, it is a means of self-expression and social communication, the most convenient, adequate, and universal means designed by nature and devised by human ingenuity. We are born with a complex vocal organism and with the irresistible impulse to manipulate that organism; we are endowed with an individualistic bent which urges us to express ourselves, to reveal ourselves, and also with a complementary gregarious instinct which impels us to get in touch with, in communication with, our fellows. The language itself (English, French, German, Esperanto) is an artificial mechanism, an invention of the human mind, an intricate system of arbitrary symbols and conventions.

It would be interesting to trace the development of language, from primitive society to modern civilization. This would reveal clearly the nature and purposes of language. It must suffice here to say, that it keeps pace with expanding social needs, that greater sophistication, greater complexity of living, a higher degree of culture and education is accompanied by, indeed is conditioned by, language development; larger vocabulary, more flexibility, the employment of language for a broader range of purposes, a higher general level of language ability, and a wider gamut of individual variations.

At any stage in social development it has been necessary, of course, to teach children their language, their "mother tongue," as necessary as to teach them any other of the arts of life, of the common modes of conduct, such as walking, working, or fighting. In the earlier stages the teaching was done in and about the home, by parents and older people. But as language became more complex and difficult, as language needs became more numerous, and particularly as *writing* became more generally desirable, the teaching was transferred more to the schools. Children still "learn to talk" in the home, because they show the desire to talk before they enter school; but they learn to write and they learn the more difficult spoken language arts in the school.

But no matter when and where the children are taught their native language, the aim is ever the same: to help them learn the ordinary, necessary acts and arts of speech, so that they may be equipped to "take their place in the world," to carry on successfully the business of living. Obviously, the person who cannot use language effectively in the common situations of life is seriously handicapped, since much of the work and most of the play of life is carried on or accompanied by speech. Whether the children learn language in the home or in school, or in both, the aim of the teaching is evident: to help them learn rapidly and thoroughly the common, necessary language arts of life, to learn efficient language conduct.

Theoretically, the public school should assist each child in the learning of *all* the language arts and activities in which he individually needs or will need to engage. But practically, that task is too heavy, since the purposes and needs, the forms and types of language are too varied and numerous. For example, certain skills, attitudes, and aptitudes are needed for professional writing, others are needed for technical expression, others for public speaking of vari-

ous kinds, and still others are needed for business. The school cannot teach all, it must limit itself, since it is a *common* school, to teaching the language arts and activities common to all. It may give some incidental training in the language types that are more highly specialized and individualized; but it must hand the burden of this over to the higher schools, to the technical schools, or to the apprenticeship of experience.

This is but another way of saying that the predominant aim of language teaching in the elementary school is social, not *social* in its narrow sense, as denoting parties, etiquette, and the like, but *social* as connoting the sum total of one's contacts with his fellows in the common gregarious life, including many of the occupational and most of the recreational aspects, excluding only the professional and strictly personal aspects. *Social* as applied to language comprises all the common, communal types of communication, those used by every one, every day. The school should enrich this language of communication by contributions from the more technical and particularly from the more literary modes of language; but the public school must cleave to the one major aim—to assist children to engage as effectively as possible in the common, immediately useful arts and activities of social language.

In this statement the writer has used the word *assist,* because he wishes to emphasize the fact that the activities of language, the motives, the purposes, and procedures are present all the time in out-of-school life, and that language using and language learning go on continually and would go on anyway, whether or not the school existed. The language work in the school is for the purpose of supplementing and directing the language learning of life, of making it more rapid, certain, and systematic. The writer has used also the phrase *as effectively as possible,* because, first, it is not possible to attain absolute mastery of a proc-

ess as complicated as language; and because, second, children differ amazingly in their individual potential language abilities. Standards must be set up, but a reasonable degree of approximation to these is all that should be expected.

Difficulties in achieving the aim. It does not seem difficult to construct a course in the English language for the elementary school on this simple working principle—to assist pupils to engage more successfully in those desirable language activities they would ordinarily engage in and to reveal other desirable language activities they could engage in successfully. But this *simple working principle,* though accepted by most educationists in theory, is obscured and nullified in application by certain traditional points of view and practices.

One of these is the prestige attached to *written* language. Written language came into general use after it had been for many generations the exclusive possession of the few highly educated persons; and it still carries a suggestion of a higher degree of culture and education than does spoken language. In spite of the fact that written language is not so common, so personally important, nor so socially useful in life as spoken language, nevertheless it receives the chief emphasis in school.

It is true, of course, that children have already learned to talk before they enter school and that they continue to learn the oral arts in their out-of-school life; and it is true also that learning to write is a difficult task, demanding and justifying much of the children's and teacher's time. But conceding this, we still devote too much time, more than is proportionately warrantable, to the written types of language. We give more hours, for example, to the study of spelling than to the parallel oral art, pronunciation; more to punctuation than to enunciation; more to handwriting than to voice production and control.

A second circumstance that interferes with the applica-

tion of such a general aim of teaching those types and forms of English that the children use and should use, is the schoolmaster's preference for the *literary* activities. We have exalted the formal "forms of discourse": narration, description, exposition, argumentation, and verse-making, which, while of indubitable value to those who have literary proclivities, are of little value to most people; and we have ignored the common social types of language, which are of transcendent value to all. A notable instance of this misplaced emphasis is to be found in the case of description. In the school it consumes an amount of time and attention all out of ratio to the frequency and importance of its use in life.

A third element enters in, to obscure our simple working principle—the traditional pedagogical stress upon grammar. For many years, grammar facts, laws, and definitions have had a place in the schools, especially in the elementary schools, far beyond what their contributions to language effectiveness can justify. Grammar touches functional language at but a comparatively few points, it covers but a small segment of the field of language; and it is, moreover, too logical and analytical to be learned by elementary pupils.

Another reason we have not been able to put into effect in school the principle of teaching those elements and qualities of the mother tongue that are most useful in daily life, is that we have magnified the importance of conventional correctness. We seem to regard the language work in school largely as a means of correcting the errors that children make, of repressing their natural expressiveness; and we have set up standards of correctness that are artificial in the extreme, standards that have never prevailed in life and which, in many instances, should not prevail.

This tendency to enforce in the school, at the expense of much time and energy, usages that are not highly val-

uable in life, is shown in many ways. For instance, the first sentence in a recent "English Diction" test is said to contain three errors. Here is the sentence: "At about eight o'clock one morning in late summer with a crowd of twenty-five people I started out on a sight-seeing expedition." The maker of the test assures us that *at about* is not as good usage as *about* would be, that *crowd* is "erroneous for *party, company,* or *group,*" and that *started out* is a "crudity when used for *set out,* or *set off.*" Possibly there is a shade of difference in favor of the phrases preferred by the test maker; but the difference is so slight as to be almost negligible. Many language books and courses of study devote attention to this hair-splitting, often giving preference to a usage that is not as well established in idiomatic speech as is the usage they condemn.[1]

Doubtless there are other difficulties in formulating a course for elementary English that will be of more immediate and more measurable service to the children in learning an ample, adequate language for their needs in life. But despite all the difficulties we should hold firmly to the general, guiding aim, the only aim that accords with present-day educational sociology and psychology.

Typical major supervisory problems in English. For various reasons the English language work in the elementary school is especially difficult. Exposition of these reasons will serve to indicate the urgent necessity of supervision and to suggest its major duties. It is difficult:

1. Because the English language (involving, among other details, training in the types of language activity, in spelling, grammar, vocabulary enrichment, and the me-

[1] For a general discussion of this whole subject, *see* H. L. Mencken, *The American Language* (Knopf, New York, 1921); George P. Krapp and C. C. Fries, *Teaching of the English Language* (Nelson, New York, 1927); Leonard and Moffett, "Current Definitions of Levels in English Usage," *English Journal*, May, 1927.

chanics of speech and writing) is an integral part of each grade in the elementary school and is given definite periods in the schedule of each day. Obviously, a subject that extends throughout all the grades, that is taught by teachers with different and perhaps divergent points of view and purposes, presents peculiar difficulties and calls for the stabilizing and unifying influence of a supervisor.

2. Because in no subject in the elementary school is there a richer and more bewildering variety of possible knowledges and activities to be included in or excluded from the curriculum. The selection of the most promising materials for the attainment of predetermined objectives is a delicately difficult task, calling for keen and sustained thinking. Every aspect of language training offers vexatious problems, problems that should be approached from the angle of supervision.

3. Because two theories or philosophies are contending for mastery in the defining of objectives and the constructing of a course in the English language. These may be termed the theory of expression and the theory of correction. Intermediate between these are several compromise positions, so that an observer might find as many objectives in the teaching of English in the grades in one building as there are teachers.[2] Such a condition calls for the construction of a definite, unified, coherent program of English, one that will survey from a central point of view all the problems involved, one that will provide for grade-by-grade progress toward agreed-upon goals and that will at

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2 Charles S. Pendleton, in *Social Objectives of School English* (privately published, Peabody College, Nashville, Tenn., 1924), secured statements of 1,581 objectives in high-school English, which have been set up by experienced teachers of English. The author of this chapter, in a yet unpublished study of the "flash" judgments of sixty teachers in the elementary schools in one small city found twelve well defined differences in aims. Obviously, there is much confusion.

the same time permit each teacher as much freedom, as much opportunity of making her own individual contribution as is feasible. There must be one common objective held by all and certain specific objectives for each grade. Naturally, these should be determined not by authority from above but by the democratic, coöperative thinking of supervisor and teachers.

4. Because several important problems and many minor ones involved in the construction of a language curriculum and in the methodology of the teaching procedure have not yet been solved. We are all proceeding on complacent assumptions and a priori conclusions. In some instances we are so tradition-blinded that we do not even perceive that there are problems, at least we have not visualized them clearly enough to state them. A few of them, sufficient to indicate a point of view and a point of departure, are stated on page 289; others should be formulated. One function of supervision in elementary English is to urge and guide the teachers to discern and define such problems, then, through experimentation and research to attempt solutions. Such experimentation need not be exhaustive nor the conclusions final. The mere raising of the problems will bring many teachers into a more observant, scientific attitude toward their work.

5. Because development of effectiveness in language is dependent upon the attaining of specific skills in the entire course and in each grade, rather than upon the obtaining of bits of knowledge. The emphases on these skills are to be distributed throughout the grades, and mastery of them is not to be expected in any grade. It is rather to be expected that only by repetition on successively higher levels, by "spiral" progress, by cumulative improvement from year to year, can the skills in language be attained. The working out and especially the carrying out of a six-year English language curriculum that insures this steady growth

is assuredly a problem of tangled difficulty, requiring the surveying eye and the systematizing mind of a supervisor.

6. Because, while it is necessary by tests and measurements to determine whether progress in English is certain and normal, the making and the using of such checking devices is still an accomplishment beyond the ability of most teachers. For some of the aspects of English no reliable measuring devices have as yet been formulated, and for even the best devices thoughtful adaptation is needed. In this the demand for supervision is manifest.

7. Because the children present a wide range of individual differences in language skills and habits. This is true largely because children have already learned to talk when they enter school and they keep on talking in all their out-of-school life; and, since they learn and use language in such different environments and conditions, their habitual language conduct is and remains highly individualized. Even in a homogeneous community, a cross section of the homes and language environment of children, to say nothing of their inherent language aptitudes, reveals startling diversity. Now, to guide a class in such a manner as to meet each pupil on his own level of language attainment and to stimulate him to work at his maximum energy and ability, and at the same time to encourage and utilize the tremendous educational power that is potential for each pupil in the reactions and interactions of all the pupils on all levels of attainment, seems a tremendous task. To socialize through bringing to a focus upon common problems and situations the individual differences of the pupils, their personal experiences, talents, points of view, and also to "individualize" instruction in those directions that have been pointed out by the socialized procedure is a task that demands the utmost ingenuity, the finest technique, the most unerring following of leads, the most flexible adaptability. It is, indeed, a task in the accomplishment of which

every teacher, no matter how experienced and expert, will welcome the supporting and guiding hand of the supervisor.

8. Because the traditional, typical teaching procedure attempts to teach the English language arts primarily through book study and book exercises, whereas the natural and most effective way to learn language—the social types of language—is primarily through one's own participation under guidance and through one's observation and analysis of his own and his fellows' participation. We have not yet perfected a technique of teaching English in the school to include and involve all those convenient means and modes of learning that are employed in the best learning—thoughtful, purposeful activity, reflection, analysis, criticism, and the like. Until we have devised such a technique, English teaching will continue to be formal and bookish. It will continue to run counter to the natural and stimulating but haphazard and uneconomical means of learning language now employed in out-of-school situations. Here is a challenge for every elementary teacher, the challenge to work out into a more effective teaching method the psychological and pedagogical principles of modern education, a method that will synthesize and utilize the somewhat informal, casual, and disorganized but very interesting and educative modes of learning used outside of school and the guided, orderly learning within the school. The combination will assuredly accord book study a place and function. Supervision, wise, keen, and patiently scientific, is needed for the devising of such a method.

9. Because the teacher herself is frequently ineffective in language, and, since pupils learn in part by imitation, the inadequacy of the teacher's language becomes for them a serious handicap. Not that the language of the teacher is often incorrect in grammar, in pronunciation, or in usage, though that is sometimes true. But it is often open

to criticism on three counts. First, her voice is not well trained, not well produced, not well pitched, not well controlled. Second, her enunciation is poor, due to carelessness, due to inertness of the vocal organs. Third, her language, her speech "style" is cold, bald, and stilted. It lacks spontaneity, expressiveness, forcefulness, it lacks figurative quality, pictorial power, vividness, color and warmth, it lacks the vigor of the best idiomatic, colloquial speech. These three language weaknesses may not here be discussed; they are but stated. A way of overcoming the difficulties may be suggested, namely, that through supervision, involving discussion and conference, both group and individual, through guided observation and study of the best practices in speech, especially in colloquial speech, a more appealing, natural social standard of schoolroom speech may be evolved.

We have presented a few of the difficulties that stand in the way of successful teaching of the English language in the elementary school. We have presented them to emphasize the necessity of supervision. There are difficulties of curriculum construction, of organization, of distribution of details, difficulties inherent in the very nature of learning language, difficulties in methodology, difficulties that can be successfully overcome only by scientific, yet sympathetic supervision.

The content of the elementary English course. The discussion of the nature of language and the aims of English teaching in the elementary grades calls for certain procedures in formulating the course of study:

1. We should discover, both in general and then with exactness of detail, the types of language activity most frequently used in life by children. We should discover those other types of language activity that have not yet been urged upon children by the social pressure of life but which nevertheless are now or in the immediate future will

be desirable and necessary. This is to be done by an extensive and intensive survey, in a sense, a job analysis.

2. We should analyze each type in order to determine, first, what are the social and rhetorical principles underlying effective use of this type; and second, what are the knowledges and skills involved. This is a *success* and *difficulty* analysis, each activity being broken up into its component specific acts. The media, the elements, and the mechanics of both spoken and written language may thus be seen by teacher and pupils as integral factors, contributing or failing to contribute to the recognized social aims of the activity; and drill leading to the mastery of the needed skills is thus justified and motivated.

3. We should determine in what grades certain language activities may be most successfully taught. This is discussed in the next section.

4. We should create, in the school, situations favorable to the economic learning of these types of language activity, situations as closely imitative of those in life as possible, since only in such life-like situations can competent training for life be secured.

The beginning and basis of such a procedure as that outlined above is the determination of the types of language activity [3] most frequently engaged in by children and adults. But this procedure has not yet been generally followed in making elementary English courses. The argu-

[3] The phrase *types of language activity* seems to define most clearly the idea implied: the forms and varieties in which language is employed in the situations of common social life. It corresponds somewhat to the older rhetorical term, *forms of discourse.* But the proposed term places the emphasis upon the action or activity aspects of social language communication. It puts language upon the same level as other modes of behavior. Roy I. Johnson has recently coined a phrase, *functional centers,* to denote the types of language activity. Johnson employs also the terms "activities" and "English activities." *English Expression* (Public School Publishing Co., Bloomington, Ill., 1926).

ment for it rests upon the belief that language *as a whole* will be learned more rapidly if it is attacked through its component specific activities, particularly those social activities the urge to engage in which is strong and universal among children and the need for which is everywhere manifested in life. No one learns language *as language.* He learns the separate, distinct acts and practices necessary to attain desirable social objectives; and the rapidity and certainty of his learning is exactly proportionate to the urgency and immediacy of his specific motives and the distinctness with which he visualizes his specific objectives.

These motives and objectives must be not only specific; they must be, as indicated above, genuinely social. Courses of study in English, especially in the lower grades, have frequently consisted of mere schoolroom *exercises.* It is now proposed that we set up social *activities,* those activities recognized by the children as important, even imperative, in life, and that we keep these continually in sight as constituting the basic material of the English course. We may then regard, and may teach the children to regard, the formal exercises and drills (those, at least, that can be justified by the test of immediate usefulness) as but contributive to participation in these activities. Thus we may avoid the aimlessness, the lack of strong motivation and clear visualization of objectives that have characterized so much elementary English.

The types of language activity. Unfortunately, there have been comparatively few scientific and thorough surveys [4] of the types of language activity engaged in by ele-

[4] See the study of Roy I. Johnson already referred to; "The Place and Function of English in American Life," Report of the National Council of Teachers of English, *English Journal,* February, 1926, published in pamphlet form by the National Council of Teachers of English, 506 W. 69th Street, Chicago; J. W. Searson, "Determining a Language Program," *English Journal,* Vol. 13, Feb., 1924, pp. 1-114; Franklin Bobbitt's treatise on English in *How to Make a*

mentary-school children. Many studies do not refer specifically to the language of elementary-school children and, in general, touch it only cursorily.

But from such studies, from courses of study that have followed more or less closely the procedure outlined above, from a few textbooks in elementary English, from theoretical but authoritative statements (referred to in the bibliography), and finally from some investigations that have been carried on for a number of years but which have not yet been published in full,[5] the author of this chapter ventures to set forth the types of language activity that he believes are most usual and therefore most useful in the speech of elementary-school children.

Seven major types of language activity seem to stand out, conspicuous above all others in frequency of use. They are, named in the probable order of importance: conversing, story-telling, explaining, discussing, arguing, speech-making, and letter-writing, the latter consists of two widely different varieties: social and business.

Conversation and discussion are the activities in which children engage most frequently and out of which spring nearly all other types of oral language activity. These two, then, transcend the others in social importance. Of stories, the three kinds that appear to be most frequent among children are: anecdotes, stories of personal experience, and reproductions of stories seen in the movies or read. Explanation is apparently most common in these three varieties: demonstrations with talk, directions as to how to make or do something or how to go somewhere, and simple analyses of processes, etc. Speech-making is not of great frequency of occurrence in the life of elementary children;

Curriculum (Houghton Mifflin Co., Boston, 1924), pp. 246-255. Other investigations are referred to in the bibliography.

[5] *See* discussion by the author in the *English Journal*, Jan., 1926, pp. 66-67. *See also* his *New Democracy in the Teaching of English* (Rand, McNally & Co., Chicago, 1923), pp. 43-53.

it appears largely in schoolroom situations and, when found in out-of-school life, has been generally initiated in school.

In addition to these seven major types of language activity, various minor types are found. There are the narrowly *social* types, such as, introduction, salutation, leave-taking, apology, invitation, compliment, request, and criticism. *Business* types are used by children, namely, promise, bargain, rule, and report. What may be termed *news* types are: notice, announcement, and statement. In the upper grades, as soon as clubs and organizations appear, certain *parliamentary* types of language are employed: motion, second, nomination, minutes, address to chair, and various conventions. Finally, there are some miscellaneous and unclassified types: description, note-taking, and petition.

The media of language. Every form of activity, every type of expression has its natural and necessary medium, an instrumentality by means of which ideas are revealed. The medium in spoken language is the voice, manipulated by the speech mechanism. The medium in written language is composed of the implements of writing in general use: paper, pencil, pen and ink, and typewriter, etc. The course in English in the elementary school must include training in the use of these media.

In *oral* speech this comprises: voice production, direction, and control; inflection and modulation; fluency and vigor of the organs of articulation, particularly tongue and lips. Negatively, it includes the breaking of slovenly voice and speech habits acquired by the children. Among the manifestations of this are: nasality, throatiness, thinness of tone, bad pitch; monotony of tone; too rapid articulation; tongue-and-lip laxness; slurring or eliding unaccented sounds; and such defects as lisping, stammering, stuttering. These latter often demand special teaching and sometimes surgical attention.

It is not the purpose of the writer to uphold as a standard, speech that is meticulous and "precious," highly "cultivated," and "elocutionary." Probably that type of speech is not as socially desirable as slipshod fluency. But manifestly the course in English must include training in the elemental and elementary aspects of oral speech, without which effectiveness in language is not possible.

Training in the use of the media of *writing* is established as a part of the course in language. It must be provided for throughout the course and the various details of it distributed properly, but it seems to present no special difficulties.

The elements of language. The aim of the course in English is to help pupils carry on more effectively than they otherwise would the foregoing types of language activity. But involved are certain basic elements. These are: structure, sentences, and words.

Under structure is included all that pertains to the organization, the composition of sentences and words into coherent, unified units of expression. In the elementary school, the aspect of structure to be most strongly emphasized is the nature and function of the paragraph.

Effectiveness in use of the sentence includes what is commonly called *sentence sense* (recognition of what constitutes a sentence), together with skill in handling the three kinds of sentences: simple, complex, and compound. It includes also skill in securing variety in sentences. In the elementary school, the most important practical aspect of sentence teaching is the breaking of the common habit of using the "run-on" sentence (the rambling sentence, with clauses connected with *and, so, then,* etc.) and of writing as sentences, groups of words lacking subject or predicate.

Probably the most important factor in effective social speech is words. The course in English must include the following: vocabulary enrichment and enlargement, dis-

crimination between synonyms, and the use of clear, expressive, and correct words. Emphasis should also be placed upon desirable colloquial diction and slang and upon appropriateness. In general, the objective should be always to keep the children's vocabulary up to their continually developing knowledge, interests, and intellectual ability.[6]

The problem of grammatical and social correctness can probably be attacked most strategically, especially in the grades up to the fifth, from the standpoint of word study. Granted that *me* in the sentence "It is me" is incorrect because a specific grammar law has been broken, granted that the order of pronouns in "I and you are to go" violates a definite social convention, it is probable nevertheless that young children will learn the correct forms more surely if they are taught that the *words* are wrong and that the established words are right, and if their ears and their vocal organs rather than their young minds are trained to hear and speak the correct forms *as words* and *groups of words* that are idiomatically and conventionally proper.

The qualities of effective language. Effective use of the types of language activity and of the media and elements of language demands the observance and cultivation of certain qualities of language. There is a certain set of qualities that may be termed *social,* such as, appropriateness, courtesy, and the like; another set that may be named *formal,* among which correctness and conventionality stand out preëminent; another that may be thought of as *expressional,* included in which are such qualities as forcefulness,

[6] Edward L. Thorndike, *Teachers Word Book* (Teachers College, Columbia University, 1921), which lists the ten thousand words most commonly found in *print* and indicates the frequency of these words. Ernest Horn, *A Basic Writing Vocabulary* (University of Iowa, Iowa City, Ia., 1926), is rich in suggestions as to the words that should be in use among children.

naturalness, clearness, and exactness in diction; still another group may be regarded as *structural,* pertaining to the organization of ideas in longer units of expression, such as unity, coherence, proportion, and completeness.

The course of study in elementary English must include the guiding of pupils to the discovery and employment of these principles of language effectiveness. Once they have been grasped, many of the problems in English can be more easily and successfully solved. And such principles, while they cannot be completely mastered, can nevertheless be learned to the point of application by children in the primary grades.

The mechanics of language. Effective use of language implies skill in what is generally known as the "mechanics": those formal and conventional details involved in the actualization of the language impulse. The most important mechanical detail in oral English (if we except actual speech manipulation) is pronunciation; another (which enters the course of study as soon as children begin to engage in speech-making), is "stage manner."

The writing mechanics are: handwriting and spelling (discussed in other chapters of this book); punctuation; capitalization; syllabication; paragraph indentation; various details involved in the handling of a manuscript, margins, spacing, and the like; and certain conventions in the types of language activity, such as the heading, complimentary close, etc., in letters.

Summary. It would seem, then, that the course of study in the English language should consist basically of teaching and training designed to assist children in carrying on more effectively the types of language activity that are most important in social communication; it should be conceived of and formulated as performing this one service. But this involves teaching and training in all the factors that enter into success in carrying on these language ac-

tivities: the media, the elements, the principles, and the mechanics of spoken and written speech.

When the subject matter and activities that must be included in the course in English have been thus surveyed and the difficulty of learning all this is clearly realized, it becomes manifest that every detail of the traditional course must be closely scrutinized to determine whether it makes a contribution to the objectives of the course. The writer has passed in review many textbooks and courses of study and has carefully studied eight recent courses and fifteen series of language texts to ascertain whether the curriculum offerings are of probable direct value. His findings indicate that an onerous weight of questionable material still encumbers the course in English. In addition to the insistence upon the traditional materials and formal practices discussed, many schools give a great deal of time to three schoolroom exercises: picture study, poem study, and unfunctional grammar study. Perhaps a limited amount of picture and of poetry study may be justified on the score that it provides material and inspiration for language and composition work and that it tends to enrich the vocabulary. But it should be a *limited* amount; the children's own experiences provide richer material for language and compositional activities than do either pictures or poems, and it is doubtful if any large measure of vocabulary enrichment is secured by such study.

The author challenges the common assumption that there is a considerable degree of immediate transfer from the pupil's literature reading to his language expression. He believes that the experiences of the child in literature, as well as in the related fine arts, such as music, pictures, dancing, and the like, should be generous and varied, and that gradually and imperceptibly these experiences (if they be genuine experiences, stirring the emotions and quickening the intellect) become an integral part of the

child's life, hence will manifest themselves in his language. But this is true of any experience, of all experiences. There is no reason for regarding the reading and retelling of fairy stories and the memorization of poetry as belonging in any special way to the course in English. Such æsthetic experiences are assumed to be a part of the life of elementary school children, but they are not here discussed nor given a place in the course in English.

So vast is the field of functional English and so difficult the task of cultivating it that we may well hold in abeyance every item, every detail, every unit of study that seeks entrance to the course, until it has given convincing evidence of its probable contributiveness to the objectives established.

Grade distribution of elementary English. After the general content of the elementary course of study in the English language has been determined, the next step is the distribution of this content throughout the six years of the elementary school.

General principles. This plunges us at once into a problem for which there is at present no adequate solution. Although valuable scientific studies of a few details of the problem have been made,[7] there has never been experimentation and scientific inquiry on a large enough scale and for a sufficient length of time to establish unimpeachable data for the course as a whole. Lacking rigidly scientific knowledge, we are thrown back upon the necessity of distributing throughout the six grades the English that is to be taught, in accordance with the following procedure:

1. We should determine what types of language activity, together with their corollary details, are most commonly used by children of certain chronological ages in their

[7] *See*, for example, W. S. Guiler, "Analysis of Children's Writings as a Basis for Instruction in English," *Journal of Educational Method*, Vol. 5, No. 6 (February, 1926).

out-of-school life, the common use of a type suggesting strongly its inclusion in the parallel grade in school. But since no one type of language can be mastered as a distinct unit and since the social situations of life demand of children participation in these types on successively loftier levels and attainment of progressively higher standards, each type must be repeated in grade after grade.

2. But we should isolate for "development" and intensive treatment in each grade specific details and units of language. One of the promising tendencies in the more recent curricula in elementary English is the definite grade placement of items and sections, the setting up of goals to be reached in each year. There is little unanimity of opinion as to what should be treated in any one year and there is no certainty that permanent mastery over the knowledges and skills involved will result. Nevertheless the determined attack upon prescribed elements, year by year, especially upon the prevalent gross errors of speech and upon the minimal mechanics of language, carries warrant of more success than does the hit-or-miss method of former times.

3. We should place earlier in the course the simpler, less highly organized and intricate types of language activity.

4. We should provide for play activities [8] of various kinds, especially throughout the lower grades. Among these are dramatization, "story dreaming," and language games. Some of these are of value in securing natural, forceful language. Artificial language games, invented by the teacher or found in some books are probably of less worth than other, freer kinds of play.

5. We should recognize imitativeness as natural in young children in learning language, and should utilize this tendency. This justifies in the lower grades a reasonable

[8] *See* bibliography for some material in this field.

amount of copying short models, dictation, and the like, and it suggests that throughout the grades most of the conventional usage be taught through imitation rather than through instruction. Two cautions need to be kept in mind, however: first, that these activities are merely *exercises,* means to ends, devices to assist the learning process—they are not to be substituted for genuine social activities; and second, that the expressional, personal aspects of language, those in which individuality is expected, are, even in the primary grades, matters for discussion, reasoning, taste, and judgment, rather than imitation.

6. In the absence of scientific knowledge, we should consult the opinions of authorities as to grade placement, should profit by the experience of workers in the field, and should study comparatively the curriculum offerings in courses of study and textbooks.[9]

With these considerations in mind, the writer presents the following brief outline of English throughout the six grades. He would call attention to certain features.

1. The basis for each year's work is production and analysis of certain types of social language activity. The details selected for each grade, the habits, skills, and knowledges are those needed for the carrying on of these definite language activities. Provision is made in each year for each of the five divisions discussed on pages 238-245, but elements and qualities are treated together.

2. Those language activities that are more distinctly of a literary nature are omitted from the general outline and are suggested as additional work for those children that exhibit more than normal literary talent. These are not necessarily superior children—they are rather children with this special taste and aptitude.

3. Systematic, grade-by-grade work in voice and manipulation of the vocal mechanism is included.

[9] For a further discussion, *see* page 288.

4. An attempt has been made to secure this sequence: first two grades, the "entertainment" types of language activity; Grades III and IV, the "instructional" types; Grades V and VI, the "public opinion" types.

5. Grammar is not treated as a separate topic—the details of functional grammar are absorbed in the study of sentences and words.

6. Distinction is made between problems of articulation and of pronunciation—the two should be kept separate in the teacher's mind, though not necessarily in the teaching procedure.

7. The work of each grade is to be reviewed and fixed in the next higher grades, repeated until the details are mastered. This does not mean, of course, that each type of language activity is to be "developed" in each grade; but it does mean that production periods in each type, together with the corollary elements, qualities, etc., are to be provided for on successively higher levels.

8. This course may seem more mature than do most courses in elementary English. It does call for more reflection, more analysis, more judgment, more initiative, more group discussion, more inductive learning. But if the children are challenged, if they are spurred up to exert their best efforts, the course is not too hard. Children generally employ in their school work a small fraction of their intellectual powers, not nearly as much as they employ in out-of-school activities, largely because the school work is often formal and remote from life and consists of book study.

First Grade

1. *Types of Language Activities*

Conversation and story-telling. No attempt is made here to have pupils distinguish between conversation (free, more or less random talk, for entertainment) and discussion (directed, pointed

talk on one specific topic, for the purpose of clarifying opinion, arriving at decisions, etc). Most of the language of this grade, including recitations, etc., may be thought of as conversation.

The stories are of two kinds: brief personal experiences and reproductions.

2. *Media*

Oral: elementary instruction in breathing, voice production and control; distinctness and energy of articulation (This should be linked up with the phonics work in reading); diagnosis and remedial attention to individual vocal defects, especially faulty voice placement and lip-and-tongue inertness; emphasis upon *ing* ending (as in *go-ing*) and such run-together phrases as *Give me, Let me.*

Written: (see chapter on Handwriting) writing on blackboard, and with soft, blunt pencil on soft paper. The writing of this grade is limited to pupils' names, to labels, to notices, and other such accompaniments of school undertakings, as plays, etc., and to single short sentences.

3. *Elements and Qualities*

In Structure: simple concepts concerning brevity, unity, concentration on main points, and exclusion of irrelevant details. (Throughout the grades the tendency toward diffuseness and incoherence must be combated.)

In Sentences: brief, uncomplicated sentence structure; beginning of attack upon the *and, so, then* habit. (Insistence upon children's "answering in complete sentences" is questionable; it probably does not strengthen the feeling for sentence structure and it certainly sets up an unlifelike standard.)

In Words: enrichment of vocabulary, largely through words heard rather than read; appreciation of picturesque, striking, colloquial words used by children; simple discriminations between such synonyms as *may* and *can;* attack upon a few common gross errors, such as *ain't,* double negative, and errors resulting from confusion of verb forms of *see, do, go,* and of case forms in simple personal pronouns, *I, me, he, him, she, her,* after the verb *to be,* but with no mention of grammar terminology.

4. *Mechanics*

Oral: pronunciation of all words in pupils' *speaking* vocabularies (as distinguished from their *reading* vocabularies); em-

phasis upon a few common mispronounced words, such as *get, just, such, for, can, catch* (such words as *dog, doll, class, laugh* may be ignored; acceptable American pronunciation sanctions the more popular sounds *dawg, dawl,* and the short *a* sound as in *hat*); conventional standing posture.

Written: use of capital *I* and capital in names of persons and at beginning of sentence; period at end of sentence.

Special Types for Literary Pupils

Dramatization of original stories, either fanciful or realistic.

Second Grade

Repeat work of first grade as needed. See pages 249-251.

1. *Types of Language Activities*

Telephone conversation (game); explaining of simple activities, as how to do or make something or how to play a game; various "social" forms, such as introduction, apology.

2. *Media*

Oral: emphasis upon pitch and quality of voice and rate of articulation; proper sitting and standing posture and effect upon voice; articulation of difficult common words, such as *why, when, where, white, once, twice, across,* and the like; articulation of such phrases as *don't know, want to, did you, don't you, I am.* (But in the effort to break up such careless habits, the teacher must beware lest she make the children's articulation too finical and affected. A degree of "telescoping" in closely linked words is desirable.)

Written: the writing of three- or four-sentence stories and explanations and of such words and sentences as are involved in the school activities of this grade. (This should frequently be group blackboard work.)

3. *Elements and Qualities*

In Structure: in conversation, emphasis upon courtesy and upon participation by all; in stories, beginnings and endings, coherence; in explanations, clearness, unity, completeness. (The practical social test of explanations is: "Did it explain so clearly and completely that no questions were needed afterwards?")

In Sentences: elimination of initial dubitative *why* and *well;*

pleonasms, such as *John he;* beginning of study of compound sentences and of simple sentences with compound subject or predicate; the interrogative sentence.

In Words: continuous effort to add to children's active speaking vocabularies the words they need to denote new ideas and to have them carry over into active writing vocabularies many of the words from their speaking vocabularies; discrimination between synonyms, such as *learn* and *teach, these* and *those;* substitution of specific words for such "blanket" words as *nice, awful,* and the like; attack upon a few common gross errors, such as *"Them* are the ones," "You (we, they) *was," come* for *came, knowed* for *knew, brung* for *brought, clumb* for *climbed, had ought,* confusion of verb forms in *eat* and *take.*

4. *Mechanics*

Oral: pronunciation of all words used in language (not reading) activities; emphasis upon syllabic accent in such words as *address;* clear pronunciation of such common words as *of, from, was, took, drowned,* and *window, to-morrow* (but with not too much insistence on the full *o* sound), *February, library.* (In *library* and such words emphasize American pronunciation, each syllable being distinctly heard.)

Written: question mark at end of interrogative sentence; period in initials and abbreviations, such as J. H. (Smith), *Mr., Mrs., Dr.;* capital letter in names of days and months, cities and states; beginning of attack upon manuscript conventions, such as the margin, spacing, etc.

Special Types for Literary Pupils

Continuation of work of first grade; add brief book reviews (statement of nature, predominant qualities and interests, etc.); description; verse-making.

Third Grade

Repeat work of first two grades, as needed. See pages 249-252.

1. *Types of Language Activities*

Discussion, social notes, and brief social letters. In story-telling begin anecdote, introduce dialogue and conversation; in explaining, introduce directions as to how to go somewhere, using handmade maps, diagrams, etc.; distinguish discussion from

conversation; *written* invitations (to school parties, etc.) and one- or two-paragraph letters to relatives and friends.

2. *Media*

Oral: somewhat intensive explanation, with diagram and chart, of vocal mechanism, and drill exercises in breathing, voice placement, use of organs of articulation; continued attack upon throatiness, nasality, lack of energy in articulation, lack of modulation and inflectional range; enunciation of common difficult words, such as *picture, asked, quiet* (instead of *quite*), *probably;* attack upon the *uh* vocable as a fill-in, a stop-gap.

Written: Beginning of use of pen and ink and social letter stationery.

3. *Elements and Qualities*

In Structure: function of the paragraph; in conversation, choice of topics, too rapid shift of topics, leadership in conversation; in anecdote, point or "nub"; in stories of personal experience and reproduction of stories read or of movies, construction and use of simple outlines; in explanations, inclusion of all necessary and exclusion of all unnecessary details; in discussion, participation and contribution of each pupil, sticking to the point and purpose (unity); in social letter, interestingness, coherence, conventional letter forms.

In Sentences: simple concepts of subject and predicate; introduction of brief complex sentence; unity of sentence; exclamatory sentence; beginning of development of variety (as related to length and to forms).

In Words: continued training in the use of specific descriptive words for the more general "cover-all" words, such as *fine, swell, thing;* elimination of such writing errors as *alright,* for *all right;* discrimination between such synonyms as *afternoon* and *evening, shall* and *will* (in affirmations only), *let* and *leave, sit* and *set, bring* and *fetch;* nominative case of pronouns used as subject and predicate attribute; antecedent of pronoun.

4. *Mechanics*

Oral: pronunciation of all common words used in speech; a few diacritical marks, such as the macron and breve. (Theoretically, we should probably adopt the modern international phonetic system; but as long as the old system is the popular one, the schools should not be expected to use any other); pupils

keep notebook lists of the words difficult for them to pronounce.

Written: comma in series of words and phrases; apostrophe in contractions; forms of social letter; capitals in titles and in all proper nouns; paragraph indentation. (Regular plurals of nouns should be introduced in this grade, but this is best regarded as a problem of spelling.)

Special Types for Literary Pupils

Imaginative stories and biographies; writing of scenarios for dramatization.

Fourth Grade

Repeat work of first three grades, as needed. See pages 249-254.

1. *Types of Language Activities*

Report (as from observation or reading on assigned topic), informal argument (not formal debating but rather group discussion of argumentative subjects).

2. *Media*

Oral: emphasis on fullness and richness of voice; enunciation of words with initial *a* followed by a single consonant (*a* as in *cat,* not obscure *a*), of words with initial *be* and *de* (*ee,* not *e* obscure or elided), and of initial *h* especially in close-knit phrases ("see *h*im," "sent *h*im"); enunciation of all sounds in such common words as *history, arithmetic, government.* (But the teacher should not force the children into meticulous enunciation.)

Written: use of notebooks for assignment, permanent composition books, listing of individual problems under such headings as "Words I Misuse," "Words I Misspell," "Words I Wish to Add to My Vocabulary," etc.

3. *Elements and Qualities*

In this grade the social functions and objectives of the various types of language activity are to be reviewed and emphasized; conversation and story-telling for entertainment; discussion for enlarging knowledge, coming to an understanding or a decision; explanation, for informing others of that which we know and that which they do not know but wish to know; social letter, for maintaining desirable social relations; argument, for persuading others to accept our opinions. The elements and qualities to be stressed are those that contribute to these objectives,

and the questions to guide analysis should be stated in terms of these objectives, "Was the story entertaining?" "Did the discussion clear up the subject?" etc.

In Structure: in reports, emphasis on clearness, accuracy, fullness-with-brevity; in argument, clearness of thought, use of evidence and proof, forcefulness restrained by courtesy.

In Sentences: more complicated sentence structure; variety in transition; inversion of words and phrases for emphasis, clearness, and variety. During this grade, a steady, continuous attempt should be made to break up the use of the double-jointed, run-on sentence, especially in written work; exercises in the turning of involved compound sentences into shorter complex sentences, in which subordinate ideas are placed in the subordinate phrases and clauses, are necessary.

In Words: beginning of dictionary work; discrimination between *lie* and *lay, rise* and *raise, hit* and *strike, good* and *well,* and other common adjective-adverb synonyms; discrimination between such homonyms as *red* and *read, course* and *coarse, to* and *two, there* and *their;* use of highly connotative diction instead of commonplace; use of figurative language; compiling lists of words read or heard which may be incorporated into one's vocabulary; study of conjunction synonyms (*moreover, also, too, etc.* in place of *and; however, yet, still* in place of *but*).

4. *Mechanics*

In this grade the textbook and the dictionary should be used habitually in study of the mechanics of language. In this grade also the close connection between the social objectives of language and correctness in the mechanics should be made clear.

Oral: pronunciation of all words, including proper names, used in pupils' speech; *all* diacritical marks (through blackboard work and dictionary study).

Written: all uses of period; hyphen in compounds and in word-breaking at end of line; quotation marks and capital letters in direct quotations; apostrophe in possessive case of nouns (together with omission of apostrophe from possessive case of pronouns). (In some courses, the writing of the possessive singular is placed in one grade and the possessive plural in the next; it would seem best to study both during the same grade.)

Special Types for Literary Pupils

Brief written debate; diaries.

Fifth Grade

Repeat work of first four grades, as needed. See pages 249-255.

1. *Types of Language Activities*

News types, especially notice and announcement, description (included as a part of social letter), order letter. Explanations in this grade should include some production of the analysis type, but limited to the simpler objective themes and familiar subjects, such as processes, machines, organisms, etc.

2. *Media*

Oral: thorough review of all previous work in voice and articulation; special remedial treatment of all "unsocial" voices: voices inaudible or too loud, harsh, thin, badly pitched, slovenly articulation and mumbling; unwavering attention to individual speech difficulties; talking "under" noises, rather then "over" them ("carrying" quality), resonance, *timbre;* consistent drill on difficult final sounds *ar, er; ard, erd, ord; al, el, il; ance, ence; ed, id; et, it.* (But these sounds are so frequently obscured in American speech that we are not justified in insisting upon too fine a degree of discrimination.)

Written: a greater ratio of written work should be expected from this grade on. The social letter may now "carry" various types, such as explanation, arguments, stories, descriptions, etc. Language types that are predominately oral may now be written first (that is, after class discussion: probably all written work should be preceded by group discussion of plans), the motive being to make the oral work more thoughtful. Pupils should be encouraged to use the typewriter for written work.

3. *Elements and Qualities*

In Structure: written outlines in all types except conversation and discussion; clearness, accuracy, brevity, formality, completeness in order letter and in notices and announcements; in description, organization, and sequence of parts.

In Sentences: introduction of concept of loose, periodic, and balanced structure; grammatical treatment of subject and predicate, modifiers and complements, phrases and clauses. (The teacher should be content if the pupils gain a rudimentary knowledge of these abstractions.)

In Words: systematic attempt to enlarge the pupils' vocabu-

laries, not so much through reading as through analyses of pupils' diction and assisting them to substitute colorful, descriptive, specific words for hackneyed, general ones; steady daily consultation of dictionary; difference in diction in various types of language, for example, in description and in order letter; elementary study (largely inductive) of common prefixes, such as *un, ante, anti, mis, pre, post,* and of suffixes, such as *ful, ship, less, or* (*er*); simple grammatical concepts of the parts of speech, such as the noun and pronoun, adjective and adverb, and inflectional changes.

4. *Mechanics*

Oral: pronunciation of difficult common words and of new words added to speaking vocabulary; posture when speaking.

Written: all points concerning preparation of manuscript; comma after inverted words, phrases, clauses, and after independent words; parenthesis, italics, hyphen in compound words, colon in letter forms and before enumeration, dash to indicate sudden change of thought, conventional proof marks.

Special Types for Literary Pupils

Original short stories; essays.

Sixth Grade

Repeat work of first five grades, as needed. See pages 249-257.

1. *Types of Language Activities*

Speech-making, parliamentary and business forms. The speeches are generally of the type designed to arouse public opinion, as in school enterprises. (Pupils may be sent to lower grades and to community meetings for speech-making). Formal debating may be carried on as a game. The pupils may be organized into a club or society, to carry on parliamentary procedure.

2. *Media*

Oral: review of all vocal and articulatory problems (with close study of charts and diagrams of vocal mechanism); unremitting effort to make every pupil's voice and enunciation clear, distinct, and pleasant.

Written: making scrapbooks and notebooks; mimeographing for school paper.

3. *Elements and Qualities*

In Structure: outlining, especially of description, explanations, arguments, and speeches; effective sequence of points or heads; topic sentence for paragraphs or points in all except narrative types; transition from point to point; summarizing; close unity in all types; variety in length and kinds of paragraphs.

In Sentences: the structure of unified, close-knit sentences, well connected and with reasonable variety is a major problem for this grade, especially in all written work; frequent blackboard analysis of good and poor sentences; all simple grammatical and rhetorical elements and principles of sentence structure. (But the teacher should be content with a fair degree of attainment, remembering that the building of firm, clear sentences is one of the most difficult of the language arts, requiring discriminative thinking.)

In Words: stimulation of word curiosity and word consciousness; steady attention to word quality and emphasis, to picturesque, vigorous, "sense-impression" diction; blackboard and textbook study of synonyms and antonyms, with approbation bestowed upon words with rich flavor and figurative suggestion; appropriateness and timeliness in use of slang; some attention to word history and derivation; prepositions and conjunctions; principal parts of common irregular verbs, properties of verbs; irregular comparison of adjectives and adverbs.

4. *Mechanics*

Oral: all common parliamentary conventions; training in looking up pronunciation of words in dictionary.

Written: thorough fixing of all written mechanics outlined for preceding grades.

Special Types for Literary Pupils

Newspaper articles, editorials, etc.; orations and speeches for special occasions.

Methods. The general principle governing the teaching of the English language may be briefly stated: create in the school, situations in which children are impelled by individual and social motives to use the various types of language activity, then assist them to use them better.

Methods may be separated, then, into two parts: *securing* the language, natural social language, used for genuine immediate life purposes and *improving* the language.

Securing the language. There is never any difficulty in life in persuading children to use language: their own pressing desires in the circumstances in which they find themselves urge them irresistibly to speak and, at times, to write. The difficulty is to produce or reproduce within the classroom the situations that are identical to or parallel with those in the freer, less highly organized home and community life. And it is these natural social situations that are most conducive to, most productive of, genuine, effective language, and it is only by creating in the school these situations, it is only by dealing, in the school, with this social language, that we may hope to work improvement in out-of-school language.

One approach to a solution of this problem is through a study of the motives that impel human beings to use language. The basic motives are: desire for self-expression, self-revelation, and its corollary, desire for communication, or intercourse with others. These motives rank among the elemental, dynamic, human urges. Two other general motives are: desire to obtain influence and popularity, to impress oneself upon others, and the desire to make money. Now, obviously, if we can produce in the school conditions and situations that will tap and release the full force of these motives, we can secure the animated, purposeful language of life—and, let us hasten to repeat, no other kind is of great value in bringing about improvement in language.

But these motives are general.[10] Let us consider the more specific motives for language expression. An exami-

[10] S. A. Leonard, *English Composition as a Social Problem* (Houghton Mifflin Co., Boston, 1917), pp. 15-37. Discusses three motives: the entertainer, the teacher, and the social worker.

nation of the reasons people use language discloses the following motives. They are listed here together with the types of language activities into which they tend to discharge themselves.

Motives for Oral Language

1. To entertain: conversation, stories, certain kinds of speeches
2. To produce desirable social relations: explanations, discussions, the "social" types
3. To instruct, to tell others that which we know, that which they do not know but wish to know: explanations, certain kinds of stories
4. To reach a decision, to make plans or take counsel together: discussion
5. To persuade others to our way of thinking: argument, speech
6. To render accounts of work done: reports
7. To spread news: announcements
8. To carry on business and other coöperative enterprises: discussion, explanation, the business types. (There are, of course, highly technical types of language used in business not here listed.)
9. To carry on clubs and organizations: discussion, explanations, speeches, the parliamentary types

Motives for Written Language

1. To preserve for future use: notes, legal forms, memoranda, diaries
2. To communicate with people at a distance: letters, telegrams
3. To reach a wider audience: all types, when printed or mimeographed
4. To make communication more formal: invitations, formal notes, petitions
5. To guide one's oral language: notes, outlines, memoranda, etc.
6. To make communication more accurate or effective: as when one, wishing to express his ideas with extreme care, writes them out, then reads aloud or else commits to memory and speaks

7. To present material for close study: as when one writes outlines, statements on a blackboard, or has them mimeographed and distributed
8. To spread news: notices, orders, news types
9. To communicate less openly when in a group: notes, examinations

Effective language teaching begins when pupils are placed in situations where they are strongly *moved* by one or more of these *motives,* to use language. But these motives, if they are to exert the driving force with which they are charged, must urge the child to *immediate* and *present* actuation of the language impulse. The schoolroom group constitutes, for the time being, his community, his social unit, his world. If he is impelled to entertain or amuse, it is his schoolmates that compose his audience; if to persuade others, those others are his schoolmates.

That is to say, the school is to be regarded not as an institution wherein the children prepare to use English in some future time and contingency, but as a natural social microcosm wherein children are urged to speak and write by all the motives that incite human beings anywhere to express themselves and communicate with their fellows. The school can provide within itself all the elements of a genuine social company, all the phenomena of genuine social occasions. The group is made up of persons of about the same age, homogeneous yet varied, of many common tastes and interests but with different experiences, individual points of view, and personal opinions. Each person can influence and be influenced by the other persons in his group, each one has certain qualities and talents not possessed by others. It is, indeed, a group almost ideal for language communication, large enough to constitute an impressive audience, to be broken up into committees and sections for special activities, yet small enough to be intimate, almost domestic. Rarely do the circumstances of

life set the stage more attractively for interesting, purposeful social language intercourse.

And here are children eager to plunge themselves into activities, projects, stunts, enterprises involving the use of language of different types, eager to reveal themselves, to entertain and be entertained, to instruct and be instructed in those fields where their interests are sharp, to converse, discuss, argue, and tell stories. In our schoolrooms are these same children who, in their out-of-school life, are impelled by all language motives, who carry on voluntarily and avidly virtually all the language activities.

The most successful teacher of the English language, other factors remaining constant, is she who can most clearly visualize and most wisely utilize the social potentialities in her schoolroom group, who can most skillfully create or recreate within the schoolroom the language-compelling situations of life, who can most vigorously stimulate the race-inherited motives for language. Children will carry over from the school into life the knowledge and skills that make for effective language in proportion to the resemblance between the school language situations and motives and those of life.

"Motivate" and "socialize" are the technical terms we have been using of late. But to "motivate" means no more than to arouse the desires that are innate in children when placed in certain circumstances. And to "socialize" means no more than to produce occasions in which the children act as a social unit. It does not imply that the seats in a room must perforce be arranged in a circle, nor that a member of the class must necessarily act as presiding officer; that may be quite formal, quite unsocial. If the children can be led by ingenious strategy into situations similar to those in life's situations in which they employ language for definite social purposes, for desirable social objectives, in which there is free play of action, reaction, and

interaction, we need concern ourselves no more with the technical meaning of "motivation" and "socialization."

The energizing and guiding of the impulses and motives innate in children is unusually difficult in regard to the *written* types of language. The challenging query of a second grader, "Why should we write, when we can talk?" is a poser. Why, indeed? There *are,* as we have seen, motives for written language, but these are not so numerous, especially with small children, not usually so strong, not so readily aroused as those for spoken language. Hence the teacher is prone to fall back upon the comparatively weak "preparation" motive for writing. She makes her pupils write stories when they would more naturally tell them; she has them "write out" their lessons, though "speaking out" would secure better learning and better language. She fails to secure, therefore, natural, motivated writing; she secures exercise writing, artificial writing.

There are, we repeat, genuine, appealing motives for writing. The difficulty has been, apparently, that we have not clearly distinguished between those for writing and those for speaking. We have failed to present written language situations, stir written language impulses. Let us address ourselves to the task (and a difficult one it is!) of producing those situations in which the language stream flows into the written molds natural to it. We can motivate and socialize written work; we cannot do it so often as we can oral work, but we can do it often enough to secure all the writing we need to equip children for life.

To teach the English language, then, whether spoken or written, we must first produce within the schoolroom circumstances that impel children to use language for direct, desirable social objectives. Almost all human group associations and activities involve language. Our problem is to help the children set up within the schoolroom activities, enterprises, projects, "things to do." Language in its

various common types will then flow freely. As these projects and procedures run their course, each person will play his part and make his contribution. The language sufficient for the purposes of the schoolroom is largely the language used to attain one's purposes within the school circle.

Not that this implies lack of contact with the world outside the schoolroom, nor lack of looking backward or forward into one's language experiences past or future. Into the schoolroom will be brought the questions and problems, the motives and purposes, the activities and enterprises, the occupations and preoccupations of life outside. And from the schoolroom the children will be sent out to observe and analyze the language of life, its points of strength and weakness, the secrets of its success or failure. Community and seasonal interests, life in the home and on the playground, work and sports are the sources from which most of the language activities of the school spring.[11] The language used in life dictates the school course of study in language; it provides most of the models and illustrations; it suggests the teaching procedure; and it is enriched and improved by the language of the school. A close and continual relation and correlation between life-within-the-school and life-without-the-school, the present, past, and immediate future life, a day-by-day weaving of the shuttle back and forth; this is clearly implied, clearly necessary. The schoolroom is but the center of language life and learning, the language workshop, laboratory, and clearing-house.

If in the school we can create situations that call for those types of language activity common in life, the children will use English for genuine social reasons. They will be moved by strong desires and deeply concerned that their language

[11] Howard L. Driggs, *Our Living Language* (University Publishing Co., Chicago, 1920), pp. 74-75. Lists eight fundamental interests for expression: recreation, nature, companionship, work of the world, peoples and places, historical tales, civic activities, literature and art.

accomplish its natural ends. This is no make-believe, no half-hearted preparation for a remote maturity; one succeeds or comes short of success; one gets his ideas across or fails to do so, *here and now;* the rewards and penalties are present and genuine. When any teacher has stimulated her pupils to speak and write for immediate social motives, she has accomplished the first part of her task.

Improving the language. But a more difficult task remains. For even though a teacher succeeds in bringing about a high degree of socialization and motivation in the language of the school, she has done not a whit more than the informal, casual circumstances of life do every day abundantly. To *get* the language of life, in the school, that is first; but that is only securing the material with which to teach; now must come the *improvement* of the language.

Children, like most adults, employ language for specific and temporary purposes: to entertain, to tell, to inform, to gain a point, to get something done; usually, like most adults they take little thought for pride in improvement. Children tell a story, for example, that they may have the gratification of relating what they have seen or heard; they must be led to tell it not for that purpose only but that they may learn to tell the next story better.

Here, then, is the second step in method: the improvement in language. For people do not learn to use language merely by using it; if they did, we should not need a language curriculum in the school. People learn language as they learn any other act or art—by using it thoughtfully, observantly, with strong intent to learn to do it well, and steadily to do it better.

And let us not deceive ourselves in the matter. Children are not eager to improve themselves except in those arts and activities popular among their companions. Excellence in language is not generally coveted by children. Children will use language gladly enough, when placed in

conditions where language can be utilized for practical ends, but *improvement* in language takes all a teacher's cleverness. Yet that is what the teacher and the school are for.

Realizing the extreme difficulty of the task, the writer sets forth at length a program of methods of improving language.

1. By group analysis of the language that has just been used. This analysis should be directed toward bringing out primarily the important social and rhetorical qualities of the type of language activity, as well as the media, the elements, and the mechanical features. The most illuminating question to guide analysis is: "Did the story (conversation, letter, speech, etc.) do what it tried to do?" This implies, naturally, that the speaker or writer has had in mind a specific purpose, is employing language consciously, for the accomplishment of an objective. Then come more definite questions: *Why did it succeed? Why did it not succeed? In what details was it good, or not so good?* Questions designed to drive the children out of remote approbation or disapprobation into grips with specific qualities and details.

The analysis should be constructive, and should concern itself with the more important issues of language. From analysis of an explanation, for example, that is clear and complete more can be learned than from analysis of one that is defective in these qualities. From a constructive analysis of an argument, an analysis that bears on its convincingness or reasonableness, more can be learned than from one that busies itself with ferreting out the flaws in diction, usage, or pronunciation.

It is difficult to lead children to a close-up analysis; they take refuge in easy generalities, such as *That was good,* or *I like Charles' story.* If one presses them, they wriggle into other convenient refuges, such as *He told it well,* or

It was interesting. These are good openings; but the teacher, even the primary teacher, must ruthlessly focus attention on *Why? Wherein? In what respects? How did he tell it well? What made it interesting?* Every specimen of language activity is successful or unsuccessful for definite, discoverable reasons. Improvement comes from discovery of the reasons.

2. By social reactions. Whether or not an audience is pleased or bored by a story, whether it gets the point of a funny incident, whether it is convinced by an argument or understands an explanation measures in an evident and impressive way the quality of the production. If the audience laughs at a ludicrous blunder in grammar or a mispronounced word, if it manifests disapproval at some discourtesy, we have an object lesson that is clear and forceful. Such social reactions must be permitted and encouraged. They occur in life, they should occur in school. The teacher, of course, must repress at times the cruelty of children and must mitigate the severity of their judgments; but she should permit the social rewards and penalties to be meted out.

3. By self-appraisal. Children, even first-grade children, should be led to self-examination, self-evaluation. They should be encouraged to discover their own points of strength and weakness. If a child has difficulty in enunciating clearly or if he twists up his pronouns, he should be brought face to face with his problem. Then you make him self-conscious. But a temporary state of self-consciousness is a requisite for improvement. There is first, the unconscious bad habit; second, the period of intense self-consciousness while the old bad habit and the new good habit are struggling for mastery; and third, the unconscious good habit. Two cautions should be observed, as the teacher attempts to make the children self-critical. First, only important matters, aspects of language that are of

vital concern, should be insisted upon, and these separately, one after the other; and second, the teacher should be considerate in her dealings with sensitive children, should praise them for every forward step. If the teacher can lead the children to be censors of their own speech, to analyze their own language attainments, she has gone far toward instilling in them a desire for cumulative self-improvement. Good learning, rapid, steady improvement come through personal effort toward specific ends or objectives. Language is social, but language learning is individual.

4. By observation. While the pupils are engaged in any unit of language activity or studying any aspect of language, they should be observing outside of school. All the common social language activities are being carried on every day of the year and almost every hour of the day. Some of this language is highly effective, some very poor, and from all of it much can be learned. Definitely to ask pupils to listen for a day to conversations or explanations heard outside of school in order to determine, for example, what makes a conversation interesting or an explanation clear, and then to discuss these reports in class is to utilize one of the most convenient and useful modes of learning.

5. By study of superior specimens of language. These will be, for the most part, (1) the best productions of the class group, but they will also include (2) types heard on the victrola and over the radio, (3) excellent specimens from children in other schools (to be found in textbooks, courses of study, etc.), (4) "standards" (see page 283), and (5) occasionally literary models. Pupils interested in reading may be asked to bring to class good specimens that they have found in books. Specimens are to be studied after some production by the pupils, but not as a means of inaugurating a cycle of language work. It is when chil-

dren have been made curious and critical of some one point that analysis of models is most educative.

6. By committee work. Questions and problems that emerge from analysis and discussion may be entrusted to committees of pupils for further investigations and for report back to class. Illustrations of this procedure are: finding out what topics people talk about, studying the local newspapers to determine how they use commas in series, interviewing the postmaster on how to address envelopes, listing the undesirable slang heard in the neighborhood.

7. By use of textbooks. Not until the analysis and practice periods have been reached, after socialization and participation have been secured and when analysis, discussion, and other study activities are under way, may texts profitably be used. Employment of texts in the following ways is recommended. *First,* after the class has gone as far as possible, through discussion and study, toward inferring or inducing a bit of knowledge, a rule, a practice, or a principle. At this juncture the consulting of a textbook to determine what authorities say, to confirm or disprove or extend individual and class opinion is educative. The class's extremity is the textbook's opportunity. The class should not resort to the text until they have used up completely their own experiences, study, and thought. *Second,* as a source book. The specimens of language, the exercises and drills, the pictures, etc., should be used, but only after language production has shown the need. *Third,* as an extension of work and study initiated by teacher and class. Situations outlined in the text suggesting production, titles listed for stories, arguments, etc., provide opportunity for further activity. *Fourth,* as a reference book. Tables, charts, rules, definitions, lists of words for spelling and pronunciation, lists of irregular verbs, etc., should be employed for handy reference when, and as often as, needed.

But the success of the entire procedure of teaching the English language is jeopardized if we yield to the insistent temptation to base the learning upon a textbook, no matter how admirable that textbook may be. Language is primarily, almost wholly, initiated by the situations of life as they touch and quicken the expressional impulses, and language improvement is but little more dependent upon books than is improvement in any other art or mode of conduct, such as singing, dancing, or driving an automobile. Probably no subject in our book-infected, book-infested American schools suffers more from textbookishness than does English. We can readily accord textbooks a place in the language program, but let us keep them in their place—a narrow and auxiliary place.

8. By separation of the pupils into "English attainment" sections. Children differ so widely in language abilities that the division into groups seems desirable. The arguments against it are: *first,* the practice is undemocratic (which is doubtful); *second,* it complicates the organization of the school; and *third,* it deprives the weaker group of the invigorating presence of the stronger pupils and condemns them to uninspiring hack work in the mechanics. But whether or not the grouping is formally made, the pupils must be met on their own levels, and there are usually three distinct levels. It is a question, therefore, of whether it is more expedient frankly to recognize the lines of cleavage and to provide for sections[12] or to allow them to remain all in the one section.

Pending trustworthy data, the writer recommends: *First,* that all pupils be held together as a unit (except for committee work, etc.), in all projects and enterprises, in the

[12] Laura McGregor, *Supervised Study in English* (The Macmillan Co., New York, 1921). Contains suggestions and working plans for a "threefold" assignment of each unit—minimum, average, and maximum. *See also,* "Tentative Course of Study in English—Junior High Schools, 1926-1927," Board of Education, Cleveland, Ohio.

study of those types of social language activity indispensable for all in life, and in the attack upon the elements, principles, and mechanics corollary to these. *Second,* that from the superior children we expect and exact larger contributions, wider knowledge, higher accomplishments. *Third,* that the children who reveal literary proclivities be given abundant opportunity to produce in the literary types. *Fourth,* that for training in the mechanics and more elementary skills, the pupils be frequently split up (by means of standard tests) into groups. *Fifth,* that occasionally pupils from the superior groups enter the lower groups as "assistants to the teacher."

9. By the setting up of grade language goals and objectives. If we can reduce the intricate business of learning the English language into its elements, if we can isolate for each grade certain definite units of learning and set these up as goals, we have made language learning more concrete, more simple, and more measurable. Children (like most of us) learn more surely and more rapidly when they know, precisely and specifically, what, why, and how they are to learn, if they have before them visible, attainable, and coveted objectives of the grade toward which to drive.

It is obvious, however, that the determining and erecting of grade goals has its attendant danger—the danger that we make language learning too laboratory-like, too systematized, too "schedulized." In learning a mode of conduct so personal, so emotional, so dependent upon elemental, free human impulses as is language, a mode of conduct with all the acts and elements so organically interrelated one to another, we must beware lest we attempt to make the procedure too "tidy" and orderly, too coldly mathematical, lest we cut apart, as for dissection, the living, throbbing tissues of life. Much language learning must be incidental, much must be left to the "inspiration

of the moment,'' to the following of leads, much must depend upon the intensity of enthusiasm aroused at the time, and much must deal with the general, unified concepts and activities of language.

We do well to set up definite grade goals, isolating for emphasis certain parts and aspects of the language to be taught. But we do well also to keep continually in mind, first, that the best time to teach any detail of language is at the moment when it is needed, as an integral factor in an intricate social process; and second, that no human ingenuity can devise a grade-by-grade course which will foresee all the contingencies that will arise when human beings are acting and reacting upon one another in the give-and-take of genuine language situations.

10. By the use of tests and measures. This is discussed fully in the next section.

11. By drills and exercises. In learning language, as in learning any other mode of action (tennis, typewriting, carpentry) there come moments when drill and practice are needed. Drill periods are most successful, most educative when language production and analysis reveal weaknesses and errors, deficiencies and limitations that obviously impair the social effectiveness of the language. When a pupil, for example, in earnestly trying to explain to others a game that he wishes them to play, makes gross errors in usage that distract attention from his explanation, or when, in an invitation to a school party, he writes blundering, ambiguous sentences—he stands convicted and can be convinced of such a serious lapse that he feels the need of attention and drill upon these matters.

Those who have ranged themselves on the side of modern teaching, those who would liberate English teaching from the formality, the bookishness and pedantry, the insistence upon ''correctness first,'' have been accused of ignoring the need of drill. This is not true. The position

of the modern teacher of English may be stated somewhat as follows:[13]

(*a*) It is difficult to persuade children to attach much importance to language correctness. Most children, being docile and amiable, will give superficial respect, pay lip-service to the teacher's corrections; but they are not deeply concerned about the matter. This is to be expected. Children are not conventional creatures. They are not impressed by forms of etiquette, pretty table manners, genteel behavior, politeness, decorum in any aspect of life. The fact that they are not gravely concerned does not mean that they should not nevertheless be trained in the nice manners and amenities of life, language correctness among others; but it does mean that unless and until they are convinced of the general importance and especially the individual import to them of those details, they will not, indeed they cannot, bring to the mastery of them their complete learning equipment, the full, intense vigor of their emotional and intellectual urges. Hence the modern English teacher expends proportionately more time and ingenuity upon the creation and conduct of genuine language situations, upon the stimulation of language motives, upon class reaction, discussion, and criticism, in the belief that children will thus be brought to realize the heavy impediment that language incorrectness may be to language effectiveness, and thus will *want* to improve. When they want to improve, they will profit by drill and remedial exercises and will frequently exert efforts of their own to improve.

(*b*) Drills, therefore, are to be employed
  (1) Only after the need has been recognized by the children;
  (2) They are to be brief, specific, definite, and as varied as possible;
  (3) They are to be regarded frankly as made-up exercises to accomplish ends desired. Moreover,
  (4) Only a limited amount of drill is to be attached to any production period, the principle being—repeat the production, then repeat the practice.

(*c*) Language drills are of greatest value in those aspects of

[13] *See* Hatfield, "The Project Method in Composition," reprinted from the *English Journal* and published by the author (Chicago Normal College, 1923), pp. 27-36. *See also*, Leonard, *op. cit.*

> English in which automatism is to be established—in the media and mechanics. They are of less value in teaching the elements of language—composition and organization, sentence structure, and diction. And they are probably of no value at all in dealing with principles and qualities, in the apprehending and then the comprehending of the basic laws of success in language—of interestingness, sincerity, human appeal; of unity, coherence, and proportion; of appropriateness, variety, vigor, and charm. These are to be learned by production, reflection, analysis, observation, and induction. They are learned little by little, with thought not of absolute mastery but of relative improvement. The advocate of modern English teaching, therefore, limits the drills, the five-finger exercises, the practice work to those details and minutiæ of language that demand and reward this type of teaching.

Drills, then, are to be employed when needed, as frequently as needed—and they are needed quite frequently. But the need must be recognized by the pupils as well as the teacher. Even with the younger children, nothing is gained by sugar-coating the nature of the drill procedure.

Eleven means of improving language, of securing definite, accelerated language learning have been discussed. Of course, there are other means. And the more means we can devise and apply, the better for the children. Under social circumstances they use language in all its common types eagerly, prompted by the most powerful of human motives. But they have only a languid and fluctuating desire to improve that language.

The writer has dwelt at some length upon the problems of method of teaching the English language. All that he has said may be resolved into four imperatives: (1) create language situations in the schoolroom, (2) engage in the appropriate language activities, (3) study the principles and techniques, and (4) practice for improvement; or, stated even more briefly:

Socialize, produce, analyze, practice

When to teach English. There is one other aspect of the teaching of the English language—the problem of *when* to teach it. For English, as has been stated, is not primarily a body of knowledge to be taught at scheduled periods within the day; it is the medium of communication in all the teaching and learning activities throughout the day. Obviously, therefore, English teaching cannot be isolated from geography teaching, from arithmetic teaching, cannot be shunted off to a separate side-track. "Every lesson is an English lesson." Whenever the teacher causes the children to employ language, oral or written, she has created a condition for which she is responsible. It is not here a question as to whether ability in English is more important than ability in other subjects. The unescapable facts are that the other subjects are learned in part through the children's use of language, and that the recitations and discussions in these subjects present the opportunities and also the obligations to teach English. English must be taught all the time because English is used or misused all the time.[14]

Theoretically, then, the English language work could be made corollary to, incidental to the learning of the other subjects and integrated with all the school activities; thus "English" as a separate curriculum offering could be eliminated. Theoretically, but not practically, as schools are now organized. Two evils would probably result. First, we should load upon the teaching of the other subjects heavy masses of language instruction and drill, much of which is not directly related to the purposes and procedures of these subjects; and second, we should impair efficiency in the teaching of English itself, since we should not find natural "openings" for many units and elements of Eng-

[14] "Every teacher is a teacher of English, because every teacher is a teacher *in* English," *The Teaching of English in England,* Official Report of the British Government, London, 1921.

lish, very important for life but not involved in the other subjects.

It would seem best, therefore, to follow the general practice—to set aside periods in the day for the specific teaching of the English language, and in addition, to touch and treat throughout the day those details of language which attach themselves to the other subjects and activities, which stand in the way, as it were, of progress in the other work of the school. The principles that control in this dual program are:

1. In the periods devoted specifically to language are to be taught and developed the social and rhetorical laws and principles of language, the knowledge concerning voice and articulation, the facts of functional grammar, sentence structure, vocabulary enrichment, and the mechanics of language. Within those language periods should be concentrated most of the learning activities outlined on the preceding pages, together with the drills, exercises, and the like. These are the hours for the opening up of new ideas about language, discussion and analysis of language, and practice for definite skills.
2. In the work of the other subjects and in other school activities the teacher should accept the responsibility of teaching English as follows. *First,* she should teach the special vocabulary of each subject, the technical as well as the general words used in the subject, together with their spelling. *Second,* she should make the most of topical recitations, reports, and such activities involved in teaching. These are effective only if certain requirements, related to language effectiveness, are satisfied—unified and coherent organization of material, clearness and accuracy in words, sufficient volume of voice and distinctness of articulation. Written assignments in any subject should measure up in mechanics to the grade level. *Third,* she should see to it that types of language activity demanded in the work of the other subjects conform to the standards. Among some of these activities are story-telling (especially of the reproductive kind), discussion, explanation, and informal argument. She should also lead the class to analyze good

specimens of these types and others found in the texts and collateral reading in the various subjects.

3. The concepts, the principles, the knowledges that have been developed and emphasized in the language periods should be carried over to all the work of the school, should be brought up incidentally as illustrating the laws of success in language or as violating rules.
4. Any point relating specifically to language that comes up in the other subjects and which has not yet been developed and stressed in the English period should be touched upon, commented upon, and then postponed until it can be considered in the English period. Study and class discussion in other subjects frequently suggest excellent themes, topics, and questions for language periods.

   If the language periods are employed for *concentration* upon problems of language and the other periods employed for *application* of the principles and facts of language, the program of "English throughout the day" can be carried on easily and effectively.

Standards and standardized tests and scales. The peculiar value of the scientific measurement device in teaching language derives from two main facts. First, the fact that a person's language, particularly his spoken language, being habitual and highly personal, is regarded by him as an intimate and integral part of his subjective life; hence he does not have the desire nor the ability to observe it dispassionately, to appraise and evaluate it. Second, there is the fact that the nature of the language process is extremely intricate. Effectiveness in speech is dependent upon so many factors, success in any one language activity is attainable only by skill in so many separate specific acts, that it is exceedingly difficult to gauge progress. The standards and standardized tests and scales, in so far as they are adequate and reliable, have great value in meeting both these difficulties; the first, because the tests are largely objective and impersonal, and the second, because they are specific.

The nature and functions of standards, tests, and scales in elementary English are so well understood that no extended discussion of them is here deemed necessary. It is desirable, rather, to outline their possible contributions and also their limitations

Values of measuring devices. The services that standards, tests, and scales may render in elementary English may be stated as follows:

1. They furnish the teacher a more trustworthy means of grading, grouping, and promoting.

2. They reveal the special weaknesses and problems, the specific items and details in language that need intensive instruction and drill.

3. They set up desirable and attainable goals in the details of English and in the work of each grade.

4. They enable teacher and pupils to compare the language attainments of any class group with the normal average attainments of a similar group, and they enable the individual pupil to compare his own attainments with those of others.

5. They make it possible to determine, with a high degree of certainty, the progress that a class group and the individuals in it have made.

6. In general, they tend to substitute for the uncertain groping and meandering, the hit-or-miss shooting of the traditional English work a comparative degree of purposeful, direct progress, of clear-sighted aiming at marks.[15]

There can be no reasonable doubt as to the contributions that objective standards, tests, and scales render in the teaching of English. Their usefulness has been con-

[15] But *see* Earl Hudelson, "English Composition: Its Aims, Methods, and Measurement," in the *Twenty-second Yearbook* of the National Society for the Study of Education (1923), (Public School Publishing Co., Bloomington, Ill.), Ch. ii *passim* and especially p. 30, for a discussion of the variances in teachers' judgments of composition even when composition scales are used.

vincingly demonstrated. Nor can there be reasonable doubt as to their limitations. They should be regarded as devices for performing certain definite services, not as a general method; as "specifics," not as panaceas. Some of their limitations are here indicated.

The limitations of tests. 1. The tests do not measure with complete accuracy. One's attainments in language or any aspect of it are determined only by his habitual use of language in the social situations of life. To place one in a situation where he is made conscious of his language, self-conscious about it, is to force him to be unnatural and artificial, in which case his genuine language ability cannot be measured with certainty. Language is a mode of behavior; change the environment, the matrix, and you change the behavior. This is clearly shown in spelling. By being compelled to focus his attention upon his spelling in a spelling test, a person displays either a higher or a lower degree of proficiency than he shows in the normal, typical writing that he does in his everyday life.

The uncertainty of the tests is manifested most clearly in the oral aspects of language. Comparatively few of the tests attempt to measure proficiency in oral language; but those that do depend upon reading and *writing* (filling in blanks, completion of sentences, etc.). Now, the transfer from free speech to unmotivated writing implies such a change in attitude, such a wrench from habitual mode of action, that any conclusions drawn are of dubious validity. A child, for example, may score fairly high in a written test in verb forms, yet in the common, social circumstances of life make mistakes in these same forms.

But what has just been said is not to be construed as argument against the employment of tests, nor argument for the loose, personal judgments of the teacher. All that can be justly charged is, that the tests cannot measure *per-*

fectly one's habitual use of language in the usual social situations of life.

2. Testing is not teaching and is not to be substituted for it. Testing measures (with a fair degree of exactness) what teaching has been done and suggests what teaching should be done. Teaching is comparable to the carrying on of a day's business, testing to the casting up of accounts at the end of the day. Both teaching and testing are necessary, but the two should not be confused as to purposes or procedures. There is probably some danger that too much emphasis upon, and too frequent employment of tests may add somewhat to the formality and the insistence upon "correctness at any cost" that characterizes the teaching of English.

3. The more general the test or scale in language and compositional achievement, the more unreliable are the results. Attempts to measure, for instance, such a composite product as a "composition" can never be entirely satisfactory. There are too many types of compositions; the aspects and features of the various types, such as stories and business letters, are too diverse and divergent to be weighed in the same scale, measured by the same yardstick.[16] So different is the point of view and so varying the individual abilities in the types of language activity that it is doubtful if even the media and elements of language can be exactly measured by general composition tests and scales.

Nevertheless, granting all this as a limitation of the usefulness of measuring devices, one may yet assert that even the general tests are more dependable than the average teacher's subjective judgment.

4. The English tests and scales that are most useful are those that measure the formal surface aspects of language,

[16] *See* Scales for the Measurement of English Composition, Harvard University, Cambridge, 1914, page 7, section I.

the "mechanics." Within the limitations indicated above (Point number one, on page 279), the tests and scales in spelling, punctuation, usage, and the like are accurate. It is somewhat easy to measure correctness, for correctness comes from observing definite regulations, from obeying specific rules; and it is possible, though more difficult, to measure clearness, since clearness is determined by the *amount* of precision or accuracy. But it is extremely difficult to measure scientifically such qualities as forcefulness, vigor, naturalness, spontaneity, appropriateness, wherein it is not a question of absolute right or wrong but of the comparative shade of excellence.

But attempts to measure such aspects and qualities serve, nevertheless, a useful purpose. They force teachers to analyze their individual judgments, to modify their personal opinions, and finally to agree upon firmer, more basic canons of criticism. These qualities *are* measurable, at least they are analyzable; and the necessity of breaking any quality up into the factors and elements that make it effective will make teachers wiser and shrewder judges of language merits.

How to use the tests. In general, standards and standardized tests and scales in elementary English are employed by supervisors, in order to compare the English work of their schools and of the grades of their schools with the work of other schools and grades; by teachers, in order to diagnose the language abilities of their pupils; and by supervisors and teachers, in order to assist in determining marks, groupings, and promotions.

The tests and scales in elementary English (omitting those in handwriting and in spelling, discussed elsewhere in this book) fall into five main classes: (1) composition (types of language activity); (2) sentence structure; (3) diction and usage; (4) grammar; and (5) mechanics, especially capitalization and punctuation. The composition

tests usually attempt to measure most of the other elements of language, the later and more satisfactory ones isolating the component elements for specific judgments.

Each test carries directions for administering and for scoring. As to the times when they are given and the use that is made of the findings, school practice varies. The general custom may be thus described:

At the beginning of the school term the tests are given, one after the other, to discover in what details the pupils individually and as groups compare with the established norms for these grades. The standing of the class and of each pupil is then plotted. The pupils themselves take part in the examination and analysis of their records. The comparative standing of the class as a whole frequently remains on the board as a reminder and challenge, and the standing of each pupil is placed in his permanent notebook. It is obvious that all this must be done with the utmost tact and kindliness; otherwise, sensitive pupils inferior in achievement will be depressed.

The usual teaching procedure now is established. The scores made on the tests must be kept in mind and any aspect of the normal language work and activities bearing on the results of the tests should be observed and commented upon. But extreme care must be taken lest the work of the class be turned into training and coaching exercises designed merely to improve the scores; otherwise the language periods are likely to degenerate into a cramming for the next test.

After two or three months (in some schools it is usually after one month), another battery of tests is given (different tests, whenever possible, but measuring the same details). The scores are worked out, charts and graphs made, and the process of teaching resumed, this time with somewhat different individual and class goals.

This continues throughout the term. Competition among

individuals within a grade or, better, among the same grades in different schools within a district stimulates efforts to improve. At the end of the term, or in many schools, at the end of the mid-year, the final standing of each pupil is considered as a factor in his grade and promotion.

In all this testing and scoring the supervisor bears an important part—in helping tabulate and interpret results, in conferring with teachers on the points of attack in the next teaching unit, in correlating and coördinating the work all along the line in the different grades, in deciding upon or perhaps working out new tests or improvements upon the established ones. As schools are now organized, it is to the supervisor that the teachers must look for expert knowledge of tests and measures.

There are very few standardized tests and scales for the first two grades, few for the third grade, and not many for the fourth grade. The usual measuring devices for these grades are first, the specific goals or objectives (which have been discussed in the foregoing section); and second, "standards" for each grade, illustrative specimens, typical attainable models.

Standards. The composition standard for any grade is or should be derived from the evaluation of many "free" compositions of the children of that grade and the determination of specimens that exemplify a representative reasonable attainment for the grade. Naturally, there will be differences of opinion as to what constitutes "representative reasonable" attainment. Scientific experimentation on a large scale is needed to formulate authoritative scales for these grades. But in the meantime the standards worked out by individuals and coöperating groups are valuable.[17]

[17] One of the first important steps toward the employment of standards in composition was taken in 1907, when the Indianapolis

The standards are used in schools somewhat as are the standardized tests and scales. But they are not derived through a scrupulously scientific procedure, hence they are not as trustworthy. They are not as specific and detailed, hence cannot be employed so well in diagnostic and remedial work. But on the other hand, they provide for these lower grades inspiring specimens of what other children have done and they are simple and uncomplicated enough to be appreciated by the young pupils.

Below is a list of the standard tests and measures for the various aspects of English in the first six grades.

Composition

Clark Letter Writing Test (Public School Publishing Co., Bloomington, Ill.). Measures correct form in social and business letters. Grades VI upward.

Courtis Composition Test (S. A. Courtis, 1807 E. Grand Blvd., Detroit, Mich.). Grades III upward.

Hudelson English Composition Scale (World Book Co., Yonkers, N. Y.). Supplement to Hillegas Scale. Grades IV upward.

Hudelson Typical Composition Ability Scale (Public School Publishing Co., Bloomington, Ill.). Grades IV upward.

Lewis English Composition Scales (World Book Co., Yonkers, N. Y.). Measures order letter, letter of application, narrative social letter, explanatory social letter, and simple narration. Grades III upward.

Public Schools published "Illustrative Compositions and Letters," containing specimens of the work of the "stronger" pupils. Perhaps the earliest widely used standards are those of John J. Mahoney, *Standards in English* (World Book Co., Yonkers, N. Y., 1917), and of Bernard M. Sheridan, *Speaking and Writing English* (Benjamin H. Sanborn & Co., New York, 1917). Because of the "human" qualities stressed in these standards, they remain to this day excellent and helpful. Many texts on elementary English (*see* list on page 288) and a number of helpful courses of study in elementary English contain standards. A promising research enterprise now being carried on is in the state of Maryland, where the teachers of each county are formulating county standards of oral composition.

Thorndike Extension of the Hillegas Scale (Bureau of Educational Research, University of Iowa, Iowa City, Ia.). Grades IV upward.

Trabue Nassau County Supplement to the Hillegas Scale (Bureau of Educational Research, University of Iowa, Iowa City, Ia.). Grades IV upward.

Van Wagenen English Composition Scales (World Book Co., Yonkers, N. Y.). Exposition, narration, and description. Measures separately thought content, structure, and mechanics. Grades III upward.

Willing Scale for Measuring Written Composition (Public School Publishing Co., Bloomington, Ill.). Grades II upward.

Wolfe Topeka Scales for Measurement of Composition (Public School Office, Topeka, Kan.). Grades II upward.

Sentence Structure

Conkling and Pressey Diagnostic Test in Sentence Structure (Public School Publishing Co., Bloomington, Ill.). Grades III upward.

Greene English Organization Test (S. A. Courtis, 1807 E. Grand Blvd., Detroit, Mich.). Grades III upward.

New York English Survey Tests (Public School Publishing Co., Bloomington, Ill.). Grades IV upward.

Seaton and Pressey Minimal Essentials Test in Sentence Structure (Public School Publishing Co., Bloomington, Ill.). Punctuation test on same sheet. Grades III upward.

Trabue Completion Test Language Scales B and C (Public School Publishing Co., Bloomington, Ill.). Grades II upward.

Grammar and Usage

Charters Diagnostic Language Tests (Public School Publishing Co., Bloomington, Ill.). Measures knowledge of pronouns, verbs, and miscellaneous. Grades III upward.

Franseen Diagnostic Tests in Language (J. K. Gill Co., Portland, Ore.). Part I, pronouns. Part III, varied constructions. Grades III upward.

Kelley, Ruch, and Terman, Stanford Achievement Test, No. 8 (World Book Co., Yonkers, N. Y.). Language usage. Grades IV upward.

New York English Survey Tests: Language Usage (Public School Publishing Co., Bloomington, Ill.) Grades IV upward.

Seaton and Pressey Minimal Essentials Test in Good Usage (Public School Publishing Co., Bloomington, Ill.). Capitalization on same sheet. Grades III-VI.

Starch Grammatical Scale A (Daniel Starch, 1374 Massachusetts Ave., Cambridge, Mass.). Grades V upward.

Wilson Language Error Test (World Book Co., Yonkers, N. Y.). Grades III upward.

Punctuation

Providence Inventory Test in Punctuation (Public Schools, Providence, R. I.). Two tests, one for Grades V-XII, one for Grades III and IV.

Seaton and Pressey Minimal Essentials Test in Punctuation (Public School Publishing Co., Bloomington, Ill.). Sentence structure on same sheet. Grades III-VI.

Starch Punctuation Scale A (Daniel Starch, 1374 Massachusetts Ave., Cambridge, Mass.). Grades V upward.

Capitalization

Providence Inventory Test in Capitalization (Public Schools, Providence, R. I.). Two tests, one for Grades V-XII, one for Grades III and IV.

Seaton and Pressey Minimal Essentials Test in Capitalization (Public School Publishing Co., Bloomington, Ill.). Good usage on same sheet. Grades III-VI.

General

Clapp Correct English, Forms A and B (Lakeland Publishing Co., 217 North Mills St., Madison, Wis.). Tests punctuation, capitalization, and word usage. Grades V upward.

Clapp and Young Self-Marking School Tests, English, No. 1 (Lakeland Publishing Co., 217 North Mills St., Madison, Wis.). Tests punctuation, capitalization, word form and usage, and grammar. Grades V upward.

Equipment for the teaching of elementary English. Probably no subject can be taught successfully with less material equipment than English. A skillful teacher can effect notable improvement in the language of children

merely by placing them in situations that move them to express themselves and communicate with one another, and then by leading them to improve by natural, convenient steps—discussion, analysis, observation, and the like.

But certain equipment may nevertheless be of considerable help. The most useful is listed below, but with the cautionary reminder that too frequent use of elaborate equipment tends to create the impression upon the children that the learning of language is dependent upon manufactured, mechanical, schoolroom devices and contrivances.

1. Charts and diagrams of the vocal mechanism. These should be simple but complete, [18] and should be referred to from the earliest grades on.
2. Victrola records of speeches, radio announcements, stories, addresses, etc. These present excellent models of voice production.
3. Blackboards and simple projection machines. These may be employed advantageously to display for class study specimens of good and poor production, sentences for analysis, etc.
4. Typewriter. Beginning with the fourth grade, perhaps earlier, children manifest keen interest in typing their written work. Certain of the writing mechanics, such as capitalization, syllabication, and punctuation can be attacked successfully through use of the typewriter.
5. Mimeographing machine. This is of special value in issuing the school paper and in multiplying materials for study and practice. The pupils should be taught to use the machine.
6. Exercise blanks, standard tests and measurements. Exercise blanks, supplied by many publishers, are of use in drills.
7. Writing materials, composition books, notebooks for listing of individual errors, words misspelled, misused, etc.
8. An unabridged room dictionary, and, beginning with the fourth grade, a handy dictionary for each pupil.

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[18] Lewis, *American Speech* (Scott, Foresman & Co., Chicago, 1916), is a helpful guide to the teacher.

9. Beginning not earlier than the fourth grade, a text for each pupil. Texts have been discussed on page 269. A few that accord in purpose, content, and procedure with the suggestions of this chapter are:

   Beveridge, Ryan, and Lewis, *English for Use* (John C. Winston Co., Phila., 1926).

   Denney and Skinner, *Our English* (Charles Scribner's Sons, New York, 1926).

   Driggs, Howard L., *Live Language Lessons* (Chicago University Press, 1913).

   McFadden, E. B., *English Series* (Rand, McNally & Co., Chicago, 1925).

   Sheridan, Kleiser and Matthews, *Speaking and Writing English* (B. H. Sanborn & Co., Chicago, 1926).

   Wohlfarth and Mahoney, *Self-Help English Lessons* (World Book Co., Yonkers, N. Y., 1925).

   Young, N. J., and Memmott, F. W., *Good English in Speaking and Writing* (D. Appleton & Co., New York, 1925).

Some unsolved supervisory problems. Implied throughout this chapter and at times specifically stated are certain weaknesses, difficulties, and danger points in the teaching of elementary English. Some of these weaknesses and difficulties are inherent in the very structure of language and the nature of language learning, some are due to misplaced grade objectives and contents, some to lack of a clear, coherent philosophy and program, and some to poor methodology. Whatever the cause, the function of the supervisor is obvious. She must visit her teachers, have personal and group conferences, give demonstration lessons, carry on experimentation, direct reading, and try to bring all the teachers to an agreement upon the main objectives of the English language. She must test the offerings and goals of each grade, must study methods of socializing and of improving the work in English, and strive to bring each individual teacher up to her highest efficiency and free her from personal weaknesses and errors.

The writer of this chapter presents no detailed discussion of the work of the supervisor. But he does present at this point ten unsolved or partially unsolved problems in English teaching, with the thought that supervisors may lead their teachers to a concerted attack upon some of them. Until they are cleared up, certain questions concerning elementary English will continue to be answered by conjecture and guesswork. This list makes no pretensions to completeness; it does no more than suggest the nature and the importance of the problems.

1. What, in any community and in the country at large, are the types of language activity most practiced by the children of each grade? This should be investigated to the minutest detail.

2. What are the most common gross errors in language in any community, and in what grade should each be attacked?

3. What errors are "gross" errors, what ones venial and trivial?

4. What is desirable and undesirable slang and colloquial language?

5. What, specifically, are the qualities of effectiveness in such types of language activity as conversation, discussion, informal argument, the telling of anecdotes, the making of announcements, and in such purely "social" types as compliment, apology, introduction, and the like? The traditional literary forms of discourse have been carefully studied and the qualities of effectiveness isolated, but some of the most important and popular types of social language have not been so dealt with.

6. What is the degree of transfer between the reading of literature and the use of language? Two of the more specific problems are: (*a*) How much does reading effect one's speaking and writing vocabulary and "style"? (*b*) To what degree does the reading and study of literary

stories, description, and the like carry over into one's production of the social types of language?

7. What is the degree of transfer between the spoken and the written activities of language? We have been assuming that there is a great deal of transfer, but nobody knows with any certainty. Perhaps it varies greatly with different types of individuals.

8. Of what value is copying, dictation, *précis* writing, and the like?

9. Does the division of the class into attainment groups actually secure better language learning? Nothing but experimentation, patient and scientific, will solve this problem.

10. Specifically, what English knowledge, arts, and habits are involved in the teaching of arithmetic, reading, history, geography, of each subject of the curriculum? The writer suspects that a careful study of this problem would go far toward clearing up the "teach language all the time" difficulty.

In addition to these ten problems, there is one task that should be attempted by groups of teachers and supervisors. This is the making of standard tests and measures for the lower grades and of measures and scales for the social types of language activities, especially the oral types, throughout all the grades. It is probable that this can never be done with much precision and objectivity, but it is nevertheless worth attempting.

Keeping up with the literature of elementary English teaching. There are a few English periodicals and other periodicals such as are listed below that are very helpful to the teacher of elementary English.

The one magazine devoted exclusively to elementary English is: *The Elementary English Review* (6505 Grand River Avenue, Detroit, Mich.). *The English Journal,* organ of the National Council of Teachers of English (506 W.

69th Street, Chicago), though intended primarily for high schools, normal schools, and colleges, has valuable material for the grades as well.

Other journals that frequently contain material on elementary English are:

Childhood Education, organ of the International Kindergarten Union (Williams & Wilkins Co., Baltimore, Md.).

Elementary School Journal, published by the faculty of the University of Chicago (University of Chicago Press).

Journal of Educational Method (National Conference in Educational Methods, 525 W. 120th Street, New York).

Journal of Educational Research, organ of Educational Research Association (Public School Publishing Co., Bloomington, Ill.).

Normal Instructor and Primary Plans (F. A. Owen Publishing Co., Dansville, N. Y.).

Peabody Journal of Education (George Peabody College for Teachers, Nashville, Tenn.).

School and Society (The Science Press, Lancaster, Pa.).

Teachers College Record (Bureau of Publications, Teachers College, Columbia University, New York).

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Hosic, James F., *The Elementary Course in English* (University of Chicago Press, Chicago, 1911). Contains a syllabus for each grade.

Klapper, Paul, *Teaching English in Elementary and Junior High School* (D. Appleton & Co., 1925). General methods for all grades.

Leiper, Macon A., *Language Work in Elementary Schools* (Ginn & Co., Boston, 1916). Good introduction, outlines of materials and methods for each grade.

[1] The first list comprises books dealing only with the teaching of English in the *elementary* school. But some of these books include reading and literature as well.

MAHONEY, J. J., *Standards in English* (World Book Co., Yonkers, N. Y., 1917). Introduction, assignment of work by grades. Excellent composition standards.

SHERIDAN, B. M., *Speaking and Writing English* (B. H. Sanborn & Co., Chicago, 1926). Introduction, work by grades. Excellent composition standards.

TROXELL, Eleanor, *Language and Literature in the Kindergarten and Primary Grades* (Charles Scribner's Sons, New York, 1927). Content and good suggestions for methods in kindergarten and first three grades.

YOUNG, N. J., and MEMMOTT, F. W., *Methods in Elementary English* (D. Appleton & Co., New York, 1923). General suggestions, full outlines for first three grades.

(This list comprises books containing one or more good chapters in elementary English.)

BONSER, F. G., *The Elementary School Curriculum* (Macmillan Co., New York, 1924). Ch. xiii, "English."

CHARTERS, W. W., *Teaching the Common Branches* (Houghton Mifflin Co., Boston, 1924). Ch. iii, "Language"; Ch. iv, "Grammar."

———, *Curriculum Construction* (Macmillan Co., New York, 1925). Ch. xvii, "Language and Grammar." Tabulation and interpretation of studies in language and grammar.

CULLER, *Elementary School Methods* (J. B. Lippincott Co., Phila., 1927). Ch. xiii, "Language"; Ch. xiv, "Grammar."

REED, Homer B., *Psychology of Elementary School Subjects* (Ginn & Co., Boston, 1927). Chs. xv-xviii, "Language."

SCHMIDT, C. C., *Teaching and Learning the Common Branches* (D. Appleton & Co., 1929).

SLOMAN, L. G., *Some Primary Methods* (Macmillan Co., New York, 1927). Ch. iv, "English Language," contains excellent list of topics for conversation, discussion, explanation.

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BLANTON and BLANTON, *Speech Training for Children* (The Century Co., New York, 1920). The "Hygiene of Speech," dealing technically yet simply with fundamental problems of voice and articulation.

SCRIPTURE and JACKSON, *Exercises for Correction of Speech Disorders* (Davis Co., Phila., 1919).

Projects

BOLENIUS, Emma M., *Elementary Lessons in Everyday English* (American Book Co., Cincinnati, 1920).

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CHAPTER VII

THE SUPERVISION OF GEOGRAPHY

BY HENRY M. LEPPARD

Assistant Professor of Geography, University of Chicago

Vessels plying the North Atlantic trade lanes in the vicinity of the Grand Banks from March 1 to July 1 are under the protection of the Ice Patrol. At stated times, the cutter on patrol duty broadcasts information regarding the distribution of icebergs, and, at any time, answers questions asked by a boat regarding its position relative to that of the ice. The Ice Patrol is the "traffic officer" of the danger zone of the sea lanes south of Newfoundland.

Icebergs have always been the dread of the transatlantic navigator. They drift hither and yon. They give no warning of their presence. They are propelled now by ocean currents, now by tides, and now by winds and waves. Fog is their constant companion.

A vessel speeding through an area infested with moving ice, during night or a fog, plays a game of chance. Even on a starlit night, a berg cannot be seen beyond a half mile; but when the position of the ice is known to the navigator, the danger is eliminated; he can alter his course to avoid the menace.[1]

In other words, the navigating officer of a vessel in the danger zone *changes, adapts, adjusts* his course *in relation* to the position of the icebergs which constitute *a specific element of the natural environment.*

[1] Lieutenant Commander F. A. Zeusler, U. S. Coast Guard, *National Geographic Magazine*, Vol. 50, No. 1 (July, 1926), p. 4.

The story of the institution and work of the North Atlantic Ice Patrol brings out additional geographic relationships. On the night of April 14-15, 1912, the *Titanic*, a giant liner on its maiden voyage, collided with an iceberg in Lat. 41° 46′ N. and Long. 50° 14′ W. and sank, with a loss of more than 1,500 lives.

An international arrangement was shortly made whereby the United States undertook to patrol, during the iceberg season, the part of the North Atlantic where the ice is a menace to shipping. The cost of the service is borne by nearly a dozen nations, in proportion to the tonnage of their respective merchant marines.

For four months in the spring, consequently, one of the three boats in the patrol service is always on duty in the danger zone, which lies south and east of Newfoundland and directly athwart the most traveled sea lanes in the world.

The icebergs come from the west coast of Greenland, being born when the ends of the glaciers from the interior ice cap push far enough into the water to be buoyed up and broken off by it. Some of the bergs are too small to survive for long, others ground along the Labrador coast, but a considerable number of the largest get as far south as the Grand Banks, carried by the Labrador current. During the winter the ice patrol is not maintained because at that time the bergs are imprisoned in the northern sea ice and hence do not endanger shipping. With the increasing elevation of the spring sun, the icebergs are liberated, and are then carried south by the current from the Arctic, which, at that season, attains its maximum volume and velocity.

The story of the North Atlantic Ice Patrol illustrates the spirit, nature, and purpose of modern geography. The chief sea lanes of the world cross a zone which in the spring is infested by icebergs; a terrible catastrophe occurs; the

maritime nations establish the ice patrol; during the iceberg season a record is kept of the position of every berg in the danger zone, and information is given to shipping regarding the position and drift of the ice, which has been carried south from the west coast of Greenland by the Labrador current. The story is one, in other words, of certain relations between travel, shipping, safety at sea and icebergs, fog, ocean currents, and Arctic glaciers.

The nature of geography. During recent years the nature of geography has changed so radically that an entirely new subject has emerged. Though the ancient name persists, *geography has become human ecology.*

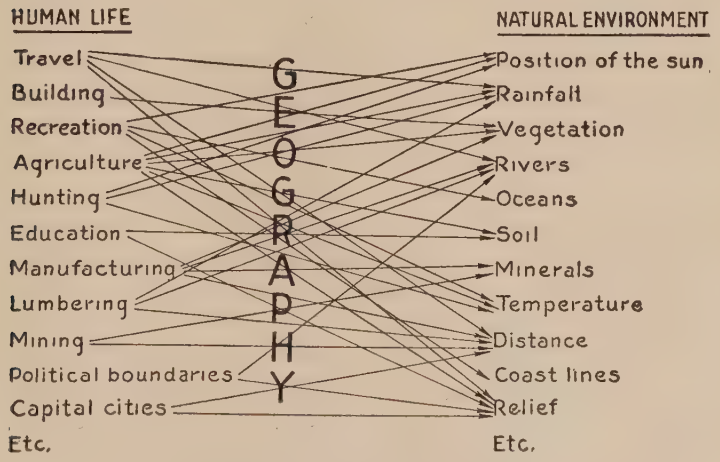
The contrast between the content of modern geography and that of the old geography could scarcely be more striking. Formerly the subject dealt, for the most part, with the earth's rivers, mountains, climates, coast features, vegetation. In addition, such topics as exports and imports, and political divisions and capitals received a large measure of attention. The textbooks were chiefly compilations of isolated facts of physiography and commerce.

When, later, "the earth as the home of man" became the object of study, the subject was still essentially a study of the *earth* even though a few facts regarding human life were appended.

A philosophy of geography the extreme opposite of that indicated above has in later years developed in some quarters. It holds that geography is the study of man, and the content of the subject consists, therefore, of all sorts of facts about all sorts of people. Such things as dress, social customs, dwellings, modes of travel, music, and religion are described in great detail, almost anything about man, which is conceived to be of interest to children being admitted to the course of study.

Modern geography, or human ecology, unlike the studies indicated above, and others which could be cited, is the

study of the relationships which exist between human life and the natural environment; between human activities on the one hand, and the natural scenes of such activities on the other; between, for example, man's traveling, playing, building, earning a living, and the natural environment of lake and river, forest and prairie, soil and mineral, rain and sunshine. Under this philosophy geography deals neither with man nor with the earth per se, but with the relationships between the two as indicated in the following diagram.



THE RELATIONSHIPS OF GEOGRAPHY

The direction of the arrows in the diagram is significant. It will be noted that they are drawn in each case from a word in the first column representing some aspect of human affairs, to words in the second column representing elements of the natural environment. The direction of the arrows suggests that geography is to be thought of as a study of the ways in which man *adjusts* his ways of living to the varied conditions of the natural environment rather than as a study of nature's *control* over man. It cannot

fairly be argued that the Mohawk Valley *controlled* the building of the Erie Canal. Instead, it offered to man a good natural route for an artificial waterway, and in connecting the lakes and the sea by means of a canal the people responsible for the choice of a route *decided to use* the natural trench through the intervening uplands.

The placing of the list of human affairs first is meant to emphasize further that human ecology is not a study of earth features, but is a study of *human life* in relation to earth features. The distinction is one of vital import, not only in the selection of geographic material, but also in its organization and in the technique of presentation.

The philosophy here set forth may be further explained by the use of a concrete example. The Welsh people are selected on account of the number and variety of the aspects of their lives which are related directly to the kind of country in which they live.

The Welsh People.[2] The Welsh differ from the English in many respects, including language, race, history, social customs, and, to a degree, economic life. The individuality of the Welsh is related largely to the relief, location, and isolation of their homeland. The roads between England and Ireland go around Wales, not through the country, following as they do the north and south coastal plains to the ferry ports of Holyhead at the extreme northeast, and Fishguard at the extreme southeast of the Welsh peninsula, respectively. These ferry ports illustrate the principle that such ports are placed *well out to sea.* Transportation by land is more expensive than by water, but passengers, mail, and some kinds of goods keep to the land as far as possible for the sake of the saving in time, since trains are faster than boats. The locations of Welsh and other ferry ports contrast sharply with those of commercial seaports,

[2] Analysis abbreviated from an article by the writer in *The Journal of Geography,* Vol. 23, No. 9 (Dec., 1924), pp. 256-264.

which are as *far up rivers and inlets* as boats can get, for the reason that ocean freight rates are usually notably lower than freight rates inland. The locations of naval stations, such as that at Milford, however, resemble those of the ferry ports in being far out to sea.

Dairying is an important economic activity in Wales. The English cities furnish a large and easily accessible market for milk and butter, the production of which is intimately related to the lush grass of lowland pastures, marine temperatures, and copious rains from westerly winds which rise as they strike the flanks of the high plateau.

Sheep raising is another important agricultural activity in Wales, the more mountainous districts having the greater number of sheep per square mile. Welsh mutton comes from the drier leeward slopes of the mountains where the sheep thrive in spite of the short grass, since they have front teeth both top and bottom, unlike cattle which have front teeth in the lower jaw only. Welsh flannel is made in such places as Newtown where both wool and coal are near at hand and where soft river water is available for the washing processes. Transhumance is practiced by the shepherds, the flocks leaving the uplands in the autumn and descending to the southwest lowlands where the winters are milder and drier than they are at greater elevations.

Many geographic relationships are exhibited by the coal-mining industry of South Wales. Seams of coal are exposed in the walls of numerous valleys cut by torrential streams. The eroding power of the water is great on account of the steep gradient; the volume of water is large on account of the heavy rainfall of the region and because little water soaks into the old, impervious rocks. The miners live in villages which extend along the narrow, steep-walled valleys. Coal mined in these valleys is carried

down-hill to ports such as Cardiff which is located at tide-water on the estuary of the Taff River. Spanish iron ore, East Indian tin, and Australian copper meet Welsh coal at the water's edge, giving rise to extensive smelting works, and also to great metal manufacturing which draws raw materials from the smelters.

An abundant supply of pure, soft water is secured from the Welsh mountains by cities as far away as Liverpool and Birmingham, and London may later obtain water from the same source. The water is plentiful on account of the elevation of the mountains which causes heavy precipitation from the wet Atlantic winds, and but little soaks into the impervious rocks. Lack of pollution arises from the fact that the basins tapped for city water supply are largely uninhabited. The rain water remains soft because the hard old crystalline rocks are practically insoluble in water. Liverpool gets its water by gravity flow from an intake in Wales eight hundred feet higher than the city.

In the other countries of the British Isles the lowland population is centrally located. In Wales the people live, for the most part, around the upland mass which is in the center of the country. Largely for this reason Wales has no capital city of its own, no one center being sufficiently accessible to the whole population to form a common focus. The peripheral distribution of population raises a serious problem also in higher education. In this case the solution adopted was the division of the University of Wales into four parts, one in the north, one in the west, and two in the south. The lack of a natural center is evidenced also in the meetings of the great National Eisteddfod, the annual festival of song and poetry attended by thousands of people. So difficult is cross-country travel that the competitions are held in the north and south in alternate years.

Wales rivals the famous English Lake Country in the number and variety of its natural attractions, and is easily

reached from the English industrial districts. Growing numbers of health- and pleasure-seekers flock to the mountain and seaside resorts.

In the brief sketch given above several aspects of Welsh life have been noted: recreation, music, education, politics, national characteristics, commerce, farming, mining; but the study of these is not geography. Various elements of natural environment have come into the story: highlands, plains, valleys, rainfall, grass, coal; but neither is the study of these geography. As explained earlier, geography, as human ecology, deals with the *relationships* between *human life* and the *natural environment*. Other sciences deal with one side or the other indicated in this statement; to geography belongs the field of the relations between the two.

The need for geographic study. The need for the study of the type of geography explained above would seem to be self-evident. In private and public life, in economic and political affairs, in the solution of national and international problems, the citizen who has been trained to think geographically has been trained to analyze the problems which come within his horizon in their association with earth conditions as well as in their other relations. The nongeographic aspects of human affairs are, of course, also of vital importance, but the interrelationships between human life and nature are so fundamental that few aspects of man's life are fully understandable without the inclusion of the geographic explanation.

The numerous specific cases wherein arise the need of the ability to think geographically, include the following:

(1) The selection by the individual of a part of the country in which to live, a place suited to his health, happiness, and the proper functioning of the knowledge and skill by which he earns a living.

(2) The use of abundant and increasing leisure time. Travel and reading are vastly enriched by the habit of

observing and seeking to explain what people do, how they live, and why they live as they do under the natural conditions of their district.

(3) The civic problems of water supply, sewage disposal, recreation, transportation facilities including highway development, and the layout of residential, commercial, manufactural, and other zones. The successful solution of all of these problems, and many others, calls for geographic insight not only on the part of officials but of the citizenry in general.

(4) The economic aspects of individual and public life demand geographic thinking. Personal suffering and heavy financial losses have resulted from the maladjustment of agricultural practices to local climatic and soil conditions, from the clearing of nonagricultural land, from the depletion of fisheries, from the misplacing of manufacturing establishments. Individual and public losses have resulted from failure to appreciate the geographic aspects of the disposal of public lands in the arid and semiarid West, of the development of some irrigation projects which are now bankrupt, of the construction of certain railroads and canals.

The objectives of geography. In view of the nature of the subject and of the need for training in it, it is evident that the *one commanding aim* of instruction in geography is the development on the part of the public of *the habit of thinking geographically* to the end that men may make better adjustments to natural environment, and apply their knowledge of geography in the making of judgments, the forming of attitudes, and the solving of individual, local, national, and international problems to which geographic thinking can contribute.

Though the above is the one comprehensive aim of the teaching of geography, there are a number of corollaries to it.

1. The ability to fit one's own life intelligently into its natural setting, or to choose surroundings to which one's capacities are suited.
2. The ability to participate sanely in the formulation of public policies relative to questions involving the adjustment of human affairs to the natural environment.
3. The ability to assist in securing better uses of land and other natural resources.
4. The ability to understand sympathetically the conditions and problems of peoples of other sections of the homeland and of other countries, which are related to and grow out of the kinds of lands in which they live.
5. The ability to appreciate the economic interdependence of regions which largely results from differences in natural assets and liabilities.
6. The ability to take an interest in current affairs which will lead to wider and more interpretative reading.
7. The ability to enjoy and understand the associations between man's playing, working, living, and the kind of place in which he lives, when these relationships are observed directly.
8. The ability to apply geographic thinking to current events throughout the world.
9. The ability to secure geographic information through the reading of maps, pictures, text, statistical tables, graphs, and the geographic complex when studied in the field.
10. A knowledge of the world gained as a by-product in the study of man's adaptation of his life and activities to the natural features of that world.
11. A knowledge of so-called place geography, such knowledge to be acquired in the course of the study of man's relations to the natural environment in specific places.

The course of study. In addition to such considerations as are basic in all curriculum work, there are special guiding generalizations to be made concerning the organization of a course of study in geography. The discussion which follows first sets forth in brief form the more important of these distinctive principles and treats a few of them in somewhat greater detail. It deals secondly with specific units which illustrate their application.

The basic considerations involved in constructing a course of study are as follows:

(1) *Major objective.* The course of study should be organized in terms of the basic objective of geographic study, namely, the development of the habit of geographic thinking.

(2) *Geographic thinking.* The habit of geographic thinking is developed by thinking repeatedly in terms of specific concrete relations between man and his natural environment in specific regions. Throughout any course, then, the immediate objective of all levels of instruction is the understanding of some of these relationships, and about such understandings the entire course should be organized.

(3) *Perspective.* Good perspective in geographic thinking is attained only through varied and well balanced, as well as numerous, experiences. These experiences involve study not only of all important parts of the world, but also, in connection with the parts selected, of all important types of geographic relations.

(4) *Balance.* Balanced thinking demands that types of adjustments, and adjustments in specific regions receive attention in proportion to their relative importance in human affairs.

(5) *Geography a separate subject.* The habit of thinking geographically can be developed only through the mastery of geographic, regional units of such number and quality as to make possible the covering of the ground indicated in (3) above. There is no possibility of reaching this goal through attempts to mix geography with either the natural or the social sciences, and thus to present occasional geographic ideas or even occasional geographic units. To meet the needs of the school population for geographic training geography should be taught as a separate subject, and time devoted to it should be so distributed as to pro-

vide for frequent short periods rather than for less frequent long periods.

(6) *A "one-cycle" scheme.* A plan by which the regional units mentioned in (5) are covered only once in the elementary school is far superior to the "two-cycle" scheme by which material is presented, of necessity, in very little detail. The latter scheme at best is wastefully repetitious; it is heavy because of condensation of treatment; and perforce offers less opportunity for training in geographic thinking.

(7) *Thought-provoking situations.* Geographic thinking is stimulated naturally and readily by presenting situations in which (*a*) there is enough of the novel to provoke questions, and (*b*) the question-raising elements are human items which are related to the natural environment in ways which can be easily understood.

(8) *Gradation in geographic concepts.* At the outset a child can work only with very simple and direct geographic associations. Through experience with these he gradually gains power to cope with situations involving associations less simple and direct. Gradation in difficulty of geographic relations is the keynote of the gradation of the units of the course of study as a whole.

(9) *Initial units.* The time-honored *home geography* unit does not fulfill the requisites of an initial study because at best a unit on the home locality in such a complexly organized country as is the United States meets neither the need for simple and direct relationships nor the novel human items which stimulate thought. The first units should deal with direct relationships to natural conditions of houses, food, dress, travel, and various simple kinds of work.

(10) *Order of units.* The order of units of study depends on (*a*) the difficulty of the thinking involved, (*b*) the importance of the region, (*c*) the child's general men-

tal maturity, and (*d*) the relation of the phase of thinking involved to the entire scheme of developing the power and habit of geographic thinking.

(11) *Organization of material.* The organization of material into units involves the following considerations:

(*a*) A teaching unit is a body of material organized by means of careful study directions to lead to the mastery of a definite core of thought or understanding.
(*b*) Units in elementary geography are regional units.
(*c*) Each region has a clear-cut personality or individuality of its own.
(*d*) The core of thought of a unit is expressed by naming the specific geographic relationships which give personality to the region.
(*e*) Each core of thought emerges through the use of much concrete material.
(*f*) No material is admitted to a unit merely because it is interesting. If it does not contribute to the mastery of the core of thought, its admission is wasteful and confusing.
(*g*) Mastery of a unit is not given by the teacher but is attained by the pupil under the teacher's guidance. Memorization of the core of thought in formal phraseology is not to be countenanced.
(*h*) A very definite goal may be reached without formalizing either the presentation or the summary by providing widely varied types of activity and of modes of expressing conclusions, all of which, however, bear directly on the goal sought.
(*i*) A unit is admitted to the course of study and to a certain place in the course, not alone for the specific contribution which it makes, but, in addition, for the advance in geographic thinking, and in the use of appropriate tools which it marks. Each unit plays a part of its own, but it plays also a part in the whole course of study.

In the above enumeration two points were raised which require somewhat more extended treatment, namely, the question of the *one-cycle* versus the *two-cycle* scheme of organization, and that of *home geography*. In addition, the

problem of the relation of geography to other school subjects may be dealt with at this juncture.

A one-cycle scheme. The traditional *two-cycle* scheme of organization provided that elementary-school children cover the world twice in four to five years' study. Under severe time pressure the first cycle afforded an opportunity for only a brief, sketchy view of many parts of the world. There was no time for any intimate study of anything. The successful pupil was the one who could fastest cram his memory with foolish lists of generalizations. Understanding was perforce at a discount. Teachers handling the second cycle were annually appalled at the ignorance of the graduates of the first cycle, and proceeded to start at the beginning again. Much the same ground was covered as at the lower level, and at the end of the second treatment pupils had gained little in understanding but much in dislike for a dull memory grind.

Under a *one-cycle scheme* the world is covered but once in the elementary school. There is, therefore, time for an intimate study of the geographic regions selected. Understanding is at a premium; explanation may supplant memorizing; wasteful repetition can be eliminated; the condensed, predigested paragraphs of phrases meaningless to the child give place to pages of geographic analysis.

One of the most notable advances in the past decade in the field of elementary geography is the change from the two-cycle to the one-cycle plan in many of the newer courses of study. Minnesota, New Jersey, Pennsylvania, and California are among the states which have published one-cycle schemes during this period.

Initial units. Many curricula provide for the study of "home geography" as the initial work in the field of geography. Accordingly, young pupils have lessons on "How I Get to School," "The Old Mill," "The Story of a Loaf of Bread," "What the Postman Does for Us," "Blank

Creek,'' ''To-day's Weather''; and learn to map the classroom, the playground, and the school district. The titles given are representative of studies in local transportation, early history, articles of food and clothing, duties of public employees, local physiography, and nature study, respectively. No doubt a child should accumulate a great deal of information of the sorts indicated above, but to call the study of such a miscellaneous collection of community life phenomena geography is an utter misnomer. For the most part, neither in the content of such studies nor in the method of thinking involved in pursuing them is there geographic quality.

In abandoning studies such as those noted in the preceding paragraph, it has been proposed to substitute a study of the relations between human life and the natural environment of the home locality as the first step in a geographic education. Although such a plan involves the teaching of sound geography, it is not a valid procedure. It violates a sound psychological principle of gradation in that it begins with the complex, not the simple. Any community that is far enough advanced to provide a school system in which geography is taught children in the elementary school is an exceedingly complex organism, and the associations between human life and activities on the one hand and the natural environment on the other are, in large measure, exceedingly involved, indirect, and obscured by the adjustments made by earlier inhabitants. Moreover, many aspects of local geography are meaningful only in the light of a knowledge of the geography of the surrounding country, a knowledge that the beginner does not have. An analysis of the local geographic complex will, in all probability, tax the insight of the best teachers.

An obvious solution of the problem of initial units is to abandon ''home geography'' as an introduction to geographic study. The interest of children at the fourth-grade

level is in such concrete, intimate things as food, clothes, and houses, and in how people play, work, and get about. Since the concept of the relations between these things and the natural conditions of most home localities is far beyond the grasp of the beginner in geography, apparently the thing to do is to study the play, work, houses, food, clothes, travel, etc. of people in parts of the world where many simple, direct geographic relationships are exhibited. The farther away such people live, and the more they are unlike the home folk, the better the stage is set, other things equal, to induce real thinking on the part of the pupil.

This thinking results from the operation of a powerful stimulus. The life of a far-away, primitive group of people presents the "disconcerting data" necessary to provoke thought. How often has the teacher been baffled by the utter listlessness of a class being taught the perfectly familiar of the home locality! What stimulus to thought is there for the child in learning that his house is built of wood and is a stationary building? His reaction is, "Of course." He asks no why. Take a pupil, on the other hand, who is entirely passive under such questions, to observe the novel, the unexpected, the disconcerting, and he is an animated question mark. Lead him to the study of human life which is different from his own and the "disconcerting data" on all sides jar him out of his mental ruts. He wants to know *what, how, why.* He thinks, and, furthermore, he likes doing it. This stimulus would not operate if the child were dealing wholly with the unknown, but such is not the case. Visualizing the life of the far-away region is merely the recombining of the known to form a related unknown. The pupil already knows house, water, road, clothes, etc. The examination of these in familiar combinations does not stimulate him to thought. The meeting of these in new settings, in new combinations, however, is a very different matter. The challenge to take what he knows and make

something new out of it brings the child's mind out of the rut and sends him exploring for other new combinations, new thoughts; and he likes doing it. The principle of proceeding from the known to the related unknown is not violated, then, but *applied* in beginning with simple, geographic relationships concerned with far-away lands. On the other hand, paradoxical as it may seem at first thought, dealing with the home locality at the outset is not proceeding at once from the known to the related unknown but lingering for a deadly, interest-killing period with the known. If home geography is confined to those geographic relationships which are sufficiently simple for beginners, it is a "standstill" scheme not a "proceeding" one. Beginning with home geography, then, violates three sound psychological principles all of which are applied in beginning with far-away lands.

Relation of geography to other subjects. The status of geography varies greatly in different school systems, from the focal center of much of the study program to an insignificant place on the periphery. The place of geography is at neither of these extremes. The subject comprises too much of value to receive only casual treatment; on the contrary, geography rightly cannot lay claim to being the center of gravity. Geography is, however, from the nature of its content and method, one of the basic subjects of study. Among the content subjects it stands separately, in a class by itself, between those dealing with nature, on the one side, and those dealing with man, on the other, and forms the connecting bond between them. Natural sciences deal with internatural relations and the social sciences with interhuman relations. Both of these types of interrelations are of vital importance in education. Both types have valuable contributions to make through methods specifically adapted to the nature of the concepts involved. Geography, dealing with human-natural relations, which

are among the most fundamental and far-reaching in human experience, has also a valuable, separate contribution to make and, likewise, can make it only through methods specifically adapted to the nature of the concepts involved. Attempts to mix geography, either with natural science or with social science, and to present it by the technique of nongeographic subjects, can never promote geographic understandings. The later discussion of specific techniques necessitated by the nature of geographic concepts will help to make clear the fallacy of the idea of combination.

Levels at which geography should be taught. The formulation of a course of study raises at once the question of the stage in the child's school life at which geography should be introduced. It has been found that in general the scholar's mental immaturity before he reaches the fourth grade precludes his being interested in or being able to do consistently the type of thinking called for in geographic study. Moreover, before he reaches the fourth grade the pupil has not sufficient command of reading processes to handle easily the reading required in the subject under discussion.

It is sometimes argued that, though real geography is not begun before the fourth grade, pregeographic work may be started much earlier. In practice, "pregeography" usually consists of stories of such peoples as Eskimos and Indians; studies of topics such as the weather, trees, and directions; and the histories of articles of clothing and of food. Doubtless such "stories" are of interest to young pupils, and have an educative value for them, providing excellent material for language training. To ascribe to them a value as material preparatory to a later study of geography is, however, very wide of the mark. The nature of the material itself is not suited to form a basis of geographic study. Though various aspects of human life and

of the natural environment are portrayed in language which the child can understand, they are neither selected, organized, nor presented in such a way as to bring out the geographic relationships involved, nor should they be. Some points are played up in a colorful way, while others, equally important geographically, are missed entirely; the organization does not provide for progressive thinking; and the presentation of the material lacks the rigorous putting of two and two together which constitutes the heart of a science. No issue is here taken with literature of the kind indicated when it is used for nongeographic purposes. It is, on the whole, fascinating material—one wishes that it had been introduced decades earlier—but its contribution to the child's education is along other than geographic lines. It is hoped, furthermore, that geographers will not attempt to write down to second- or third-grade level geographic material which rightly belongs in higher grades, because in the primary grades children are not interested in the sort of thinking demanded in geographic analysis, and that largely because they are incapable of doing it. The child who comes to the study of geography in the fourth grade without any such "preparation" is as competent to do geographic work, properly presented, as he would be after such "prework," provided his reading ability is normal for the fourth-grade level.

The position taken is that there should be no geography in the study program of children below the fourth grade; that any "pregeography" is unnecessary, and may be harmful through the initiation of wrong habits of geographic thinking.

It requires about four years to cover a single cycle scheme adequately. This means that undoubtedly geography should be a part of the curriculum in Grades IV, V, VI, and VII, whether Grade VII be in an elementary school or a junior high school. Following this cycle, the

child enters upon the second stage of geographic thinking, a stage characterized by multiregional or world units, in contrast to the regional units of stage one. The number of such world units that it is practicable to offer in Grades VIII to XII is still a matter of debate and experimentation.

Units of a course of study. The foregoing discussion raises the problems of the choice of groups of people to be studied at the various levels of instruction, the geographic aspects to be analyzed, and the organization of the various units of study according to the principles set forth.

As exemplified in the geography of Wales outlined earlier in the chapter, and implied in various other parts of the discussion, regional treatment is the sine qua non of geography in the elementary school. The weakness of the common practice of organizing a unit on tea, for example, which is grown in China, Japan, India, Java, etc., is that the peoples of those lands are much more than tea growers. The emphasis on one aspect of their lives to the neglect of other aspects equally important results in a loss of perspective and balance which are basic qualities of geographic insight. Even though rice were studied next, and other products seriatim, the result is, at best, a course of study which is a patchwork rather than an organism. Since people live and earn a living in some definite part of the world, in other words, since people live regionally, the logical organization is one which provides for geographic study by regions. In contrast to the plan under which a commodity or an activity is followed into widely separated parts of the world, a regional treatment provides for the study of a given people doing many different kinds of things in the region in which they live. To repeat, the prime reason for a regional organization in geography is that people live their lives in what may be termed regions.

The tenth general principle given above points out the criteria by which the order of units of a course of study

in geography is determined. It has already been shown that the principle of gradation demands the study, in the fourth grade of distant lands which are rich in simple and direct geographic associations concerned with food, houses, clothing, travel, and simple kinds of work and play. It is not enough, however, merely to present at that level a miscellaneous group of units dealing with such lands. Numerous courses of study provide for initial units of the kind specified, but fail to select those which contribute progressively to the child's growth in geographic thinking, because they are isolated units which do not build at each step upon preceding units in such wise that a unified whole is constructed. Pygmies, Eskimos, and Indians, for instance, are presented in any order which chance or fancy dictates. Such units are like so many unshaped building stones which lie scattered about in confusion, whereas they should be of such forms and so arranged as to form integral parts of a growing edifice. Each new unit should fit upon others in such a way that the structure of geographic thinking grows steadily. The units of study should be so selected and presented that a mastery of their cores of thought will contribute to the fundamental concept that human life varies in relation to varying natural conditions with distance from the equator. This concept is the foundation of the entire geographic structure. An allied concept which is attained at the same time is that there is no universal way of living, that people live differently in different parts of the world in relation to different kinds of country. The fourth-grade work should lay this foundation.

The part of the world of most importance to the American child is the United States. He ought, therefore, to study that country as early as practicable. For the reasons already amplified he should not attempt the study of his homeland during the first year of work in geography. In possession of the understandings achieved in the fourth

grade, however, the pupil is competent to undertake in the fifth grade the geography of the United States, and of Canada.

Eurasia should be studied in the next grade, the sixth, because that is the part of the world, outside of the United States and Canada, which is of greatest social import to the American child. Evidences of this importance are found on all sides and include the numerous references in the press to Eurasian affairs, the number of Americans who visit Europe and Asia, the trade relations of the United States, and the fact that, in addition to the many Americans whose parents came from Europe, nearly one-eighth of the population of the United States was born in Europe.

The one-cycle treatment of the world is, according to the plan here being set forth, completed in the seventh grade by the study of Latin America, Africa, and Australia. Following this should come an analysis of the world relations of the United States, a study which is appropriate at this stage in view of the pupil's knowledge of foreign lands and of his ability to do the type of geographic thinking involved in such a unit.

The course of study, then, may be summarized as follows:

Grade IV—Type Studies of Peoples in Various Latitudes.
Grade V—United States and Canada.
Grade VI—Eurasia.
Grade VII—Latin America, Africa, Australia, and the World Relations of the United States.
Grade VIII—World Relations of the United States if not studied in Grade VII, and other multiregional world units.

Space does not permit a detailed treatment of many units of study. Typical units will be considered at some length, however, other appropriate units being indicated though not analyzed.

It is to be clearly understood that the units selected are used for illustrative purposes only. The units themselves

and the order of their presentation have been found in practice to yield satisfactory results, but no single set of units is the only practicable one.

Fourth grade. It has already been pointed out that the peoples chosen for study in this grade should demonstrate that human life is lived differently in relation to different natural conditions which occur at various distances from the equator, and that the course of study should be organized on a regional basis from the outset.

It is also to be noted, first, that, taken together, the regions introduced form an irregular belt reaching from the equator to the north pole. The particular belt in which these regions lie is chosen because, after careful comparison of all such belts which could be considered, this belt proved richer than any other in the variety of types of simple geographic adjustments found within it. The regions are chosen, secondly, to show (1) that many similar adjustments are made in lands which have many similar natural conditions, as in Mesopotamia and the Lower Nile region, and (2) that in the lands south and north of the regions first studied, adjustments differ because the natural conditions differ. It is of basic importance in the early stages of geographic training to make such comparisons.

The fact that the pupil does not know at the outset where in the world Mesopotamia is, bothers him not a whit. He has not yet learned that it makes any difference in the lives of its people just where the country is placed. He still has a vital interest in the "once upon a time and far away." In reading of Sinbad the Sailor, Ali Baba, Aladdin, and Haroun al Raschid he has been quite happy in thinking of them as living merely "in a far country." He approaches the geographic story of the Mesopotamian people with the same attitude. At the close of the unit, when he has definite imagery of this part of the world, he should be led to translate appropriate parts of that imagery into

map symbols, and through their use should come to understand that Mesopotamia occupies a specific part of the world.

(1) The core of thought of a unit of study on modern *Mesopotamia* is that houses, foods, dress, travel, and various kinds of work are related to a natural environment in which scarcity of rain, abundant sunshine, and two great navigable rivers are important elements.

The *houses* of the people of Mesopotamia are of three kinds. The desert shepherd lives in a tent which he can put up and take down easily, and which can be readily bundled up and taken along when the family frequently moves from place to place to find pastures for the flocks. Furniture would be heavy and bulky to carry and would often be broken; moreover, wood is scarce in a land where there is little rain. Palm-leaf mats are used as chairs and beds. Stoves are not used by the nomads; instead, the cooking is done over stones on the ground. The house is of woolen blankets or skins, and the furnishings are made from the articles at hand and fit the kind of country in which the people live.

People who live in villages, and do not follow flocks which quickly eat off the grass in a district, have permanent houses made of sun-dried mud. Imported wood is too expensive to be used, and, in any case, a wooden house in the hot land of Mesopotamia would be too hot for comfort, and in the dry air the boards would soon crack badly. Clay, on the other hand, is easily obtained, and the thick mud walls keep out the heat admirably. A flat roof affords a good place to sit during the evenings, a sloping roof being unnecessary in a land of little rain.

Town houses are, in many cases, more than one story high and are built of brick which can be obtained near by. The windows are few and have shutters to keep out the heat.

Evidently the material and architecture of the Mesopotamian houses are adapted to the needs of the householders and to the heat and aridity of the country.

The *foods* used likewise fit the natural conditions of the country. Dates are used extensively. The date palm grows well in the hot, sunny climate, water from the streams being applied to the roots of the trees. The fruit is preserved by drying it in the hot, dry air. Sheep and goats are raised on the thin grass of the semiarid region, rather than cattle which require lush grass and plenty of water. Goat's milk and mutton are, in consequence, common articles of food in Mesopotamia. Wheat bread is also used, since wheat, requiring less water than other grains, is grown in parts of the region. Most of the rain falls during the cooler season, hence the wheat is planted in the fall to take advantage of the winter rains.

Loose *clothing* is worn by the inhabitants. It is cooler on a hot day and warmer on a cold night than are tight-fitting clothes, and in Mesopotamia the days are hot and the nights cool or even cold. Parts of the clothing are used, too, to protect the face from blowing sand, and to prevent the skin from cracking by keeping in the moisture of the breath.

Methods of *travel* also fit the nature of the country, and include the kelek, the koofah, and the camel. The kelek is a raft used for traveling down stream on the Tigris and Euphrates Rivers. It is built of poles made from trees which grow near the rivers, and inflated goat skins to increase the buoyancy. At the end of the journey the wooden part of the raft is sold, but the goat skins are carried back to the starting point by pack donkeys.

The koofah is a bowl-shaped boat. It consists of a frame made from the willows which grow along the streams, and a coating of asphalt, from springs near the rivers, to make the boat watertight.

The camel is a very important beast of burden for travel by land. He can carry a heavy load; he can go a long distance without water; the fat in his hump nourishes him in case of emergency; his cleft hoof keeps him from sinking in the sand; and his nostrils are so shaped that when the sand is blowing he can breathe without getting sand into his lungs.

The *ways of earning a living* include farming, sheep raising, weaving, making mud bricks for buildings, trading, and transporting goods. All of these kinds of work are related simply and directly to the natural conditions of the country.

In the weaving of rugs, for example, the wool from the native flocks is used. Sheep manage to pick up a living in spite of the scarcity of grass and water. The sheep has a small body and hence needs a relatively small amount of grass to support it; it needs also but little water, getting a large part of its supply from the sap of plants. Further, with its narrow, pointed mouth, and front teeth both top and bottom, a sheep or goat can graze very close to the ground.

This sketch of some of the focal geographic relationships does not, obviously, constitute a complete analysis of the unit. A treatment with a class of beginners would be much more detailed and intimate, would involve greater elaboration of the points given above, and would include numerous aspects of the lives of the people not touched on here. In the remaining units of the first year's work only the focal geographic relationships are given.

(2) The central concept in the study of the *Land of the Nile* is that farming by irrigation, tending sheep and goats, traveling by river boat and camel, living in flat-roofed houses, and other human activities, resembling in many ways those of Mesopotamia, are related to a natural environment in which, as also in Mesopotamia, a great nav-

igable river, little rain, much sunshine, sparse grass, and water for irrigation are outstanding elements. This region is in contrast to that of the Upper Nile where the hunting of big game, building houses with sloping roofs, tending cattle, growing corn and beans, etc., are related to such aspects of nature as much rain, abundant grass, patches of forest, many wild animals, and the fact that the noonday sun is never far from overhead.

(3) In *the Congo Region* the building of houses with sloping roofs and of materials from trees, traveling by water in dug-out logs, catching fish, hunting wild animals, farming in cleared patches, trading rubber, oil-palm kernels, and ivory, and other human activities are related to a natural environment in which a great deal of rain, a midday sun which is directly overhead or nearly so, summer the year round, dense forests, large streams, some grasslands, and many wild animals are prime elements.

(4) Cultivating grape vines, and olive, lemon, orange, and fig trees, growing wheat, raising sheep and goats, and caring for winter tourists are important aspects of human life in *Mediterranean Lands* and are related to a natural environment in which mild, sunny winters, little rain, long, hot summers, much sea coast, and water for irrigation are the principal aspects.

(5, 6, 7) The cores of thought of units on *Switzerland, Holland,* and *Norway* may be stated in a way similar to those given above.

(8) Following the above units a longitudinal section of the earth presents the *Polar Regions,* and compares conditions in similar latitudes on the two sides of the equator. The core of thought of the unit is that the work of explorers is the only important human activity in lands farthest north and farthest south. The use of dogs and sleds for travel, wearing heavy clothing, timing travels to avoid winter darkness and extreme cold, building houses of snow

and ice, and other exploration activities are related to a natural environment in which months of continuous darkness and of continuous daylight, a dangerous Arctic sea, a great Antarctic plateau, cold summers, very cold winters, and much ice and snow the year round are important elements. The adjustments made in lands farthest north and farthest south are similar but they are made at different times of the year because winter farthest north is summer farthest south, and vice versa.

(9) In a *summary unit* the core of thought is that knowing some reasons why man works and plays as he does in the parts of the world already studied helps one to know *some* of the activities one may expect to find men carrying on in parts of the world not yet studied, for (1) daylight periods and seasons of cold and warmth differ with distance from the equator, while daylight periods are alike and summer and winter seasons *tend* to be alike in places that are equally distant from that line, and (2) in every country man's work and play are related in various ways to lengths of days, and to lengths and kinds of seasons.

Throughout the work of the fourth grade, as in that of later grades, a definite knowledge of the location of places is attained as a by-product of the investigation of geographic associations in *specific places*. It has been found that this necessary knowledge gained in the way indicated is both wider and more permanent than when secured through drilling on so-called place geography.

Fifth grade. During the second year of geographic study the pupil should gain the ability to recognize, think in terms of, and apply relationships between man and his natural environment which are, on the whole, less simple and less direct than those encountered in the first year's work. Relationships concerned with food, clothing, shelter, and travel now give place, for the most part, to relationships concerned with the more important methods by which

man earns a living. The major emphasis is now upon the industries which are typical of various parts of the country. Stress is laid, accordingly, on the *work region.*

Western United States, the part between the Rocky Mountains and the Pacific, may be taken as an example of a unit suitable for study early in the fifth grade because there the geographic work relationships are, on the whole, simpler than they are elsewhere in the country.

The core of thought of the unit is that in various localities of the West where there are large forested areas, logging is the dominant work; along some of the rivers and coasts where fish are abundant, fishing is important; in scattered regions where there are large mineral deposits, mining is the chief work; the natural beauty of many regions attracts thousands of tourists each year; in some sections, and especially in the larger, more fertile valleys, there are important farming communities; in some drier districts ranching is the chief work; at important junctions of land and water routes cities have grown up as centers where the products of forests, fisheries, mines, farms, and ranches are traded or used in mills and factories; and these areas where work of different kinds is carried on are separated by areas of arid, semiarid, or mountainous land containing few or no people. Since logging is closely related to the timber supply available, mining to the deposits of ore, fishing to the supply of fish, and farming to the fertility of the soil, such kinds of work decrease as these natural resources diminish. Accordingly, many changes in work in Western United States are to be expected.

It is important that teachers should be fully aware of the change in emphasis indicated in the above outline, and of the reasons for it. In the United States food, clothing, shelter, and methods of travel are much alike in the various parts of the country, and, though related in some measure to immediate local surroundings, are also related, through

the medium of complex systems of exchange, transportation, etc., to the natural environments of other parts of the homeland and even of other parts of the world. Tracing the relationships between such items and the natural environments in various parts of the world to which they are related constitutes geographic thinking of an order much too high for fifth-grade children. What the child at this stage can comprehend, however, are the adjustments to local natural conditions which people make in securing an income.

Wherever there are, of course, direct associations between types of clothing, houses, food, travel, etc., and local natural conditions, they should be pointed out as in earlier studies. Instances of such are the relations between the heights of buildings in New York City and the scarcity of desirable building space near the waterfront; between the adobe huts of Indians in the Southwest and the building materials at hand; between the early sod houses of the Great Plains and the character of the vegetation of those grassy and almost treeless plains. There are a host of others so obvious and simple that the pupil can supply them himself, and the teacher need only ask for them if, upon occasion, they may be helpfully cited. Additional examples of such are the associations between the weights of clothing and seasonal temperatures; the time of canning fruits and the time of the fruit harvest; the use of raincoats and umbrellas and the weather. To spend time laboring such points is merely to waste it in wearying the child with what he already knows. Even in the case of such geographic relationships as those first mentioned above, children should be able, on the basis of previous training, to point out for themselves the associations as soon as they see the cultural features, such as sod houses, and the natural features, such as grassy, almost treeless plains.

In the fifth grade, then, geographic aspects of food,

shelter, etc., play a minor part compared with the relations between industries of various kinds and the kind of country in which they are carried on. Various methods of earning a living have, of course, been studied in the fourth grade, so that the idea is not entirely new in the fifth grade. At the latter level, however, work becomes so prominent an idea in each unit that children learn to think in terms of work regions, as already noted.

Western United States affords a unique opportunity for such a transition in emphasis, for here there are many types of rather small work regions. A typical forest area, for example, may be chosen and in the course of an examination of it, such as has already been made of various lands, the outstanding importance of logging and related work are grasped by the pupil who comes naturally to accumulate a group of associations concerned with the lumber industry. In a similar way other geographic relations emerge in a study of other great extractive industries such as fishing and mining. These relations are somewhat more simple and direct than those concerned with grazing, agriculture, and the tourist industry which should, therefore, be brought out later in the unit. These latter in turn exhibit less complexity than the geographic aspects of commercial and manufactural adjustments which, consequently, should be developed last. At the same time, then, that children are gaining an understanding of how people fit their different kinds of work to different kinds of places in Western United States, they are mastering an organized body of understandings concerning work adjustments which is invaluable to them in their future study of other regions of their own country, and of other parts of the world.

It is evident that, if Western United States should be studied first on account of its relative simplicity, Northeastern United States should be studied last on account of

the relative difficulty of the geographic concepts involved. Work regions involving intermediate difficulty are the grazing and forage crop region between the Rocky Mountains and the Mississippi; the central mixed farming region; the northern mixed farming, mining, and lumbering region; the southern mixed farming region; and the southeastern region.

The core of thought of the unit on Northeastern United States is that the density of population in that region, where more than half of the people of the whole country live, is due to the use made by man of New England's forests, quarries, scenery, farm lands, and offshore fishing grounds; to his use of Delmarvia farmlands; to the use of the forests, coal, iron, and farm lands of the states bordering the Great Lakes; but in even greater degree it is due to the importance of manufacturing and commerce in the great city belt which stretches from southern New Hampshire to Baltimore, and in the lesser belt which extends from New York to Chicago and from St. Louis to Baltimore. Manufacturing and commerce in those cities are related not only to the forest, fishing, farm, and mine work of Northeastern United States, but, in greater degree than in the case of most cities in other regions, to the resources of many other parts of the country, to the comparatively easy natural land and water routes which connect various parts of the region with one another and with other parts of the country, and to the advantageous location of the northeast seaboard cities with respect to Europe.

A study of Canada may be satisfactorily included in the work of the fifth grade, the various regions, namely, Northern Canada, British Columbia, Prairie Provinces, Southern Ontario and Quebec, and Maritime Provinces, being dealt with largely by comparison with similar regions in the United States.

It is to be noted that in the course of such units, only

internal relationships are stressed, because the child has no background for understanding such relationships as those concerned, for example, with an analysis of our foreign trade. Such external relationships belong to the second or "world unit" stage of geographic thinking, and will be discussed in a later connection.

Sixth grade. In the same way as a unit on Western United States served as a transition from the type of concept developed in the fourth grade to the type emphasized in the next grade, a study of the British Isles leads the pupil forward from the later concepts of the fifth grade to the more comprehensive concepts of the third year of geographic study.

The core of thought of the unit is that Britain is a land of new and old, and, like Northeastern United States, a land of attractive farms and pastures interspersed with woodlands, a land of many people and of many large cities with numerous grimy factory districts, great modern mills, and splendidly equipped harbors. The Irish Free State, on the other hand, is a land chiefly of farms and pastures. The place of Britain among the nations of the world, the density and uneven distribution of its population, the outstanding importance of its manufacturing and trade, the reputation of its people as seafarers, the development of numerous highly specialized manufacturing districts and of many great cities are among the human items which help to give character and personality to the British Isles. These aspects of British affairs are related to a natural environment which includes the island nature of the region, location in upper middle latitude near the mainland of Europe, excellent offshore fishing grounds, a mild climate, prevailing westerly winds which blow from the waters of the relatively warm North Atlantic drift, rainfall moderate to abundant, considerable high land but much low land, rich and varied resources such as coal, iron, china clay, fertile

soils, natural grasslands, many streams, great length of coast line, and many good natural harbors.

The Wales unit outlined on pages 298-301 shows the specific types of relationships which are developed in such a treatment.

In the work of the sixth grade new relationships arise which constitute an advance in difficulty and comprehensiveness as great as that encountered in the advance a year earlier to the geographic associations of the work region.

(1) The relations between industry and natural environment continue to be stressed, but somewhat more abstract human items are added, which are related to natural conditions through the medium of the work items. The greater difficulty of the new type of geographic concept lies not only in the rather abstract nature of the human item, but also in the tracing of the associations with natural conditions through an intervening item. Variation in density of population, for example, is related to different kinds of industry, each of which is in turn related to local natural conditions.

(2) Another of these less concrete human items which is introduced in the sixth grade is that of the relative importance of a country among the countries of the world. No attempt should be made, manifestly, to rank countries numerically in this regard but such a statement as "Britain is one of the few very important, powerful countries in the world" leads to an attempt to discover the reasons for the "greatness" of such a small country, and also the relations between that "greatness" and the importance of various industries, and, in turn, the relations between those industries and the natural environmental complex, leading elements of which have already been listed. Understandings of this kind in the sixth grade designedly help to prepare the way for a later grasp of the geography of world power.

These two aspects of human affairs, namely, density of population and relative national importance, should be stressed time after time in relation to different natural conditions, for it is only through the investigation of these associations in country after country that pupils come to grasp the fact that distribution of population and comparative national status are as much a part of the geographic personality of a land as are the industries carried on there.

A word of caution should be given here, lest inadvertently it be supposed that national accomplishments are explainable solely on a geographic basis. Clearly national status depends also on the intelligence and industry which the people bring to bear on the utilization of their natural resources. Examples abound. The British, for example, did not become sailors just because of an insular homeland, an abundance of fish in the adjacent waters, many good harbors, and timber for shipbuilding. They are sailors because, having these natural assets, they *took advantage of them.* Germany may be cited as a case in which the inhabitants have overcome serious adverse natural conditions, and by the expenditure of much thought and effort have made productive use of resources which are, in various respects, rather meager. Denmark, through education and coöperation, has built an enviable economic structure by making the best of what was a discouraging natural situation. In contrast to Denmark, Spain and Portugal have probably not made the most effective use of the natural resources of the Iberian peninsula. For centuries Japanese rulers prevented the development of their country along some lines by prohibiting international intercourse. Political and economic oppression has until recently prevented some of the peoples of Europe from profitably adjusting their affairs to their natural habitat. These and other cases which could be cited support the position taken above, namely, that the status of a nation cannot be explained

solely in terms of adjustment to natural environment. Possession of vast natural assets does not, ipso facto, mean greatness for the nation.

(3) A third new idea, one already implied, is the organization of geographic material by political regions. In Anglo-America there were but two major political units involved, and work regions rather than states or provinces served best the level of geographic thinking attained in the fifth grade. The people in the United States and Canada do not differ significantly from state to state or province to province in their method of adapting their affairs to natural conditions. In Europe and Asia, however, people adapt their ways of living to natural conditions very differently in the various political entities which make up the continent. It is important, therefore, that sixth-grade "geographers" take cognizance of the fact, for without it their interpretation of much that is met will be inadequate, and, furthermore, world affairs are presented not by regions of industry but by political units. This does not mean that the work region ceases to be important in geographic thinking. On the contrary, at no stage does it cease to be significant. For example, the major concept of the political region may be built up through a grasp of the minor concepts of the work regions which the country comprises; and the work region constitutes a valuable basis for comparative and summary studies at the end of the year or during the progress of the year's work.

(4) A fourth advance made at the sixth-grade level is the training given in stating in terse, explicit terms the geographic relationships discovered. Heretofore the phrasing of the relationship statement has been done largely by the instructor, but at this stage the pupils not only work out the association but are gradually made responsible for the formulation of the statement which expresses the conclusions reached in the investigation.

Limited space precludes the outlining of the remaining Eurasian units of study, but the following units, in the order indicated, have proved satisfactory in practice:

1. British Isles
2. France
3. Germany
4. Denmark, Holland, and Belgium
5. Scandinavia
6. Iberia
7. Italy, Switzerland, and Austria
8. Finland, Esthonia, Latvia, Lithuania, Poland, and Czechoslovakia
9. Japan
10. China
11. India
12. Southeastern Asia
13. The Land of the Five Seas
14. The Bridge Lands of Southeastern Europe
15. Russia

It is to be noted that eastern Asiatic countries are introduced following western European countries, while those of eastern Europe and western Asia are treated last. This is done because the last named of the three groups are countries which partake somewhat of the nature of those between which they lie. Also the children have no basis for understanding the many problems of these lands which arise out of their intermediate position without having concepts of the lands between which they form a bridge.

Seventh grade. It remains to complete the first stage of geographic training by making detailed studies of the geography of Latin America, Africa, and Australia in the order named. This involves the introduction of various relationships which are customarily classified as *political geography.* Since these southern lands have been developed by Europeans, as far as modern civilization is concerned, there are evidenced there the adjustments, and some mal-

adjustments, to natural conditions made under the ideas and customs developed in relation to European natural conditions. Such concepts are typical of the somewhat greater difficulty of the next level of geographic thinking. Activities of many kinds are related not only to local natural environment but to natural environment elsewhere, and form a transition to the second stage of geographic training.

By the time the child has reached this level of thinking, at or near the end of the seventh grade or of the first year of junior high school, he has completed his initial regional survey of the world, and should have developed the power to deal satisfactorily with the basic internal relationships in the more important regions of the world.

Having completed, in one cycle, the type of work indicated in the foregoing pages, the pupil is then ready to advance to multiregional, world units. The first of these, manifestly, should deal with the external or world relations of his own country, a study appropriate for late seventh-grade or early eighth-grade work. It is clear that, if children are allowed to stop short of completing in the seventh or eighth grade the unit dealing with the world relations of their own country, they will be deprived of experience which makes, to their training for American citizenship, valuable contributions which can be made through no other avenue.

A study of the external geographic relations of the United States involves a consideration of such questions as the rank of the United States among the more important trading countries of the world; the nature and origin of the chief imports, and the nature and destinations of the chief exports; the business done by the leading ports; overseas trade routes; immigration; geographic aspects of world power; and responsibility for world progress.

While the evidence is against *home geography* as a study

in the initial stages of geographic training, obviously, provision ought to be made elsewhere in the course of study for the investigation of appropriate aspects of the geography of the home locality. The pupil is better prepared to undertake a survey of the home district after he has completed his study of the world and of the external geographic relations of the United States than he is at any earlier stage of his training. Preferably, then, *home geography* should be introduced in the seventh or eighth grade. If it should seem desirable to begin a study of the home district earlier than this, an appropriate time would be when the pupil has completed his study of the United States, late in the fifth grade. In the latter case, the study of the home locality, once begun, can be continued profitably throughout the remainder of the course, along with the regular classroom work. An understanding of most aspects of local geography can best be attained through study in the field.

The technique of presentation. The effective presentation of such units as have been indicated involves the use of techniques which are peculiarly appropriate to geography. Without the employment of these techniques it is difficult, if not impossible, to lead pupils to the mastery of geographic cores of thought. Space permits the outlining of only a few of the procedures which lead to the gaining of specific abilities that constitute integral parts of the larger ability to think geographically. These notes can do no more than to indicate the types of skills which must be developed.

I. *Developing the ability to interpret geographic complexes in the field.* The value of this ability can scarcely be overemphasized since the field is the geographer's laboratory.

(1) The types of cultural features to be recognized are chiefly those pertaining to agricultural, pastoral, lumber-

ing, hunting and fishing, commercial, manufactural, and recreational activities.

(2) The natural features to be observed are those which help to explain actual or potential utilization of land and other natural resources.

(3) In the survey of a landscape *explanations* are sought for such phenomena as

(*a*) The distribution of population
(*b*) The types of buildings, clothes, foods
(*c*) Methods of travel
(*d*) The kinds of work carried on in different places (see [1] above)
(*e*) The dominance of certain economic activities
(*f*) Areas set apart for recreation
(*g*) Human activities other than those listed
(*h*) Waste land

It is not to be thought that all of these queries which the geographer raises in the study of a landscape can be answered by visual observation only. Some of them can be solved in that way; for some a tentative solution can thus be found; in other cases the solution has to be sought elsewhere.

II. *Developing the ability to read pictures.*

(1) Pictures afford the best substitute for direct observation of landscapes, hence the procedure in the analysis of a pictured situation is comparable to that followed in looking at the original.

(2) From some pictures geographic relationships can be read directly; other pictures portray some of the elements of the complex; still others, and their name is legion, are entirely useless for geographic purposes. Only those pictures should be used which have a definite contribution to make to the unit in which they are introduced and they should be used at junctures where that contribution can be made most effectively.

(3) The amount of meaning to be read from a given picture varies with the stage of advancement of the pupils.

(4) Captions are likely to reduce the amount of thinking done in the study of a picture.

(5) A good picture needs to be studied as thoroughly as a page of text.

(6) Definite purposes are requisite in picture study; and careful checking of the findings is also essential.

(7) Uncaptioned pictures constitute an effective means of testing possession of concepts and of power to think geographically.

(8) All of the various types of pictures such as lantern slides, moving pictures, prints, and half-tones are valuable. Prints and half-tones, however, constitute the most valuable single source of pictorial material available for classroom use.

(9) Some of the early steps to be taken in developing this ability are:

(*a*) Selection of pictures in terms of the geographic understandings to be attained through their use
(*b*) Directing of attention to familiar cultural elements in an unfamiliar complex
(*c*) Encouraging the asking of *why* questions regarding the unfamiliar, cultural elements
(*d*) Directing attention to natural features in answering the questions indicated in (*c*)
(*e*) Holding children responsible for the adequate comparison of features shown in pictures of the various regions studied
(*f*) Insistence on the expression by the children of the geographic relationships suggested by the pictures
(*g*) Holding pupils responsible for checking the relationships thus suggested

III. *Developing the ability to read maps and globes.*

(1) The basic principle is that the idea must precede the symbol.

(2) The early maps must be exceedingly simple; it is as

great a pedagogical crime to present to a beginner in map reading a page full of complicated map symbols as it is to present to a beginner in text reading a page from a treatise on a technical subject. The reading of a page of map symbols is a highly technical performance.

(3) The introduction to the symbolic representation of cultural and natural features can be made naturally through the use of aerial photographs taken at successively greater heights.

An aeroplane view taken at a height of 1,000 feet shows the details of buildings, roads, fields, streams, etc., much as they would appear to an observer looking down upon them from a high hill. In a view of the same landscape taken at a height of half a mile minor details are lost but the major features retain their identity. Taken at a considerably greater height a photograph shows only the plan of the landscape, in which, for example, a road or a stream is represented by a line and a town by an irregular dot. The transition from the concrete to the symbolic is thus effectively made, for the line, dot, etc., which are abstract symbols, represent in the mind of the child the stream, town, etc., which are actual features of the landscape.

(4) The making of maps is one of the best ways of learning to read maps made by others.

(5) Maps may be used:

(*a*) In the building up of a concept
(*b*) In the presentation of findings
(*c*) In testing knowledge and ability to perform

(6) The mere outlining of the steps to be taken in developing map- and globe-reading ability would require several pages but the three stages in such training may be briefly characterized.

Stage I should be accomplished in the course of the first two or three units of fourth-grade study and consists (*a*) of the use of a very few symbols, such as those for land,

water, river, city, and coast in expressing facts learned about the regions with which these units are concerned; and (*b*) of the imposition of these symbols upon a globe symbol.

Stage II, which should be completed by the end of the first year of geographic work, is characterized by (*a*) the use of the same simple type of map as was used in Stage I; (*b*) the introduction of new symbols on these maps at junctures where they are needed; and (*c*) the imposition of each new map symbol on the globe symbol. Symbols for continents, equator, and poles should be introduced near the end of this stage, not near the beginning, for it is not till near the end of the year's work that the first principle can be applied, that of preceding the symbol with the concept. Parallels, meridians, latitude, longitude, and terms and symbols of this order of difficulty belong in Stage III, latitude in the fifth grade, and longitude in the sixth or seventh, preferably the seventh.

Stage III is characterized by the introduction of new types of maps at junctures where they are needed in the development of the geographic units in which they are introduced, but never without translating imagery into the new symbols, and subsequently translating those symbols into imagery which is made immediate use of in geographic thinking. Development of this sort should progress rapidly during the second year of geographic work, during which many new types of maps are introduced. At later levels, development is chiefly through repeated and increasingly intensive interpretation of types of maps introduced earlier, with only occasional new symbols or new types of maps added. This stage is characterized also by the expression on maps and globes of many types of facts, resulting in a great variety of pupil-made maps and globe material, all of which must function definitely in the development of the habit of geographic thinking.

IV. *Developing other techniques.* Other distinctive techniques are those concerned with the progressive development of:

(1) A technical or semitechnical reading vocabulary, and the habit of discovering geographic relations through reading, and of expressing them in writing.

(2) Skill in the interpretation of statistics and graphs used for geographic purposes.

(3) Ability to use museum materials effectively.

(4) Ability to summarize and present significant findings discovered in geographic study.

To show the steps in each of these types of training, the levels at which they are appropriate, and the specific part they play in geographic thinking would require a good-sized book and, hence, cannot be attempted as part of one chapter.

Relation of technique to the course of study. The ideal course of study in geography is one which not only names the units to be mastered, and describes them in terms of their cores of thought, but which (1) lists the major understandings, that is, the more important geographic relationships; (2) indicates the types of pupil activities which are to be employed in the mastery of the cores of thought; and (3) states specifically the gains in various special skills which should be made in the course of the various units. Such a course serves as a real guide to teachers.

The format of a unit in such a course might well be:

I. *Core of thought of the unit.*

II. *Understandings involved in developing this core of thought.*

III. *Pupil activities.* The pupil activities involved are:

(1) Those which contribute to landscape interpreting ability in the course of contributing to the mastery of the unit,

(2) Those which contribute to map and globe inter-

preting ability in the course of contributing to the mastery of the unit.

IV. *Resulting attainments which should be tested.*

The writing of the course of study. The construction of a course of study in geography, as in other fields, is a task for the specialist and not for the generalist. This fact does not in any way discount the value of the grade teacher's work which is unique in the educational world; it does point to the necessity for distinguishing functions. The qualifications for formulating a course of study are those of the expert who (1) has had many years of training in the academic aspects of human ecology; (2) has a thorough grasp of the philosophy of the subject; (3) has a perspective of the whole field so that the foundation in the elementary school is built with a view to the superstructure which is to be erected upon it in school and in life; (4) has the ability to select and organize material toward adequate ends; (5) has an intimate knowledge of children at the various school levels; (6) has a grasp of the technique of developing geographic concepts at the various levels of attainment; and (7) other qualifications comparable to those possessed by the consultant in law, engineering, or medicine.

In contrast to the capabilities of the specialist those of the classroom generalist are (1) to comprehend the meaning and significance of objectives already pointed out; (2) to recognize standards to be met; (3) to distinguish between materials which meet those standards and those which do not; (4) to recognize good technique and to know why it is good; (5) to acquire a command of the subject matter and the philosophy of the subject laid down in the course of study; (6) to get the habit of geographic analysis; (7) to become acquainted with the tools of geographic work; and (8) to develop proficiency in other ways on the executive firing line of the subject.

It is not a case of assessing different values to the different functions segregated; neither the specialist nor the generalist can operate without the other. It is a case of a division of labor so that the school may function properly.

Measurement of results. The most significant fact of which supervisors should be aware concerning the measurement of results in geography is that there are available at present no standardized tests which are satisfactory for this purpose. Those that have been published test, for the most part, mere by-products of the subject instead of its essentials. Strange though it seems at first thought, various so-called geography tests may be "passed" satisfactorily by one who does not even know the nature of modern geography, not to mention its content. They call for lists of products, location facts, and the like which can be memorized quite apart from any geographic thinking. Obviously, then, they cannot measure geographic achievement. Upon second thought, however, this situation is readily understandable. The change in the nature of geography is relatively recent, very recent indeed, in so far as elementary geography is concerned, and the momentum of the past is operative in the making of many present-day tests. Even many who advocate whole-heartedly the newer type of geography revert to old-time habits of thought when it comes to the construction of tests. Then, too, the line of least resistance encourages the testing of by-products instead of the testing of real geographic achievement. It is relatively simple to ask for isolated facts, and by no means so simple to test the understanding of geographic relationship, the mastery of cores of thought, and the possession of specific abilities. To do the latter, however, is entirely practicable and in time it will be effectively done, a prophecy for which there is much supporting evidence. There is, for example, a very marked effort to include in the newer tests some real geography. Unfortunately such material as has

been published to date must be used with discriminating care because, though obviously constructed with the best of intentions, it is in many cases so worded as to be inaccurate. To illustrate, children are asked, let us say, to name or select from a list of natural items those which "control" or "determine" a given human activity. Now one of the elements of geographic thinking, as was pointed out earlier in the chapter, is the habit of thinking in terms of adjustments as contrasted with the fallacious habit of thinking in terms of "controls" or "determinations." The only correct reaction on the part of the student to such a problem would be to say that *no* natural items control or determine the activity named. Yet the constructor of such a test problem means, of course, for the child to select something, and probably would give him no credit for the correct reaction.

To cite another type of error common in such material: in using a multiple-choice device, a test problem calls on pupils to check the item in a given list which explains the importance of manufacturing in New England. Of course, no single item or small group of items can do this, and the effort to meet such a demand can but tend to form bad habits of geographical thinking. Such an exercise could be so worded, however, as to be valuable. The mere substitution of "helps to explain" for "explains" makes all the difference between valuable and worthless work. Somewhat similar fallacies are observable in various "best reason" devices. For example, a child is asked to choose the best reason for growing wheat in Saskatchewan from a list of items which includes a statement concerning soil conditions, another concerning climatic conditions, etc. He is asked, in other words, to do what no living person can do, namely, to tell which of these factors is of greatest importance. Without soil, the climatic conditions would be of no avail, and vice versa. No quantitative comparison of these values

is possible. All such fallacies (and the list of types of errors could be extended considerably) are due to inaccurate geographical thinking on the part of the authors of the tests, and that in turn is due largely to lack of experience in such thinking. In time, these difficulties will be overcome, and further experimentation will result in correct test problems. Some few of the latter are even now to be found among the others, but they still are too few to make the use of any of the published tests worth while in a school system.

The situation in regard to testing is by no means so discouraging as the discussion thus far might lead one to expect, however, for there are various means of testing which may be employed the while experimentation is going forward with the construction of appropriate standardized tests. Meanwhile, testing can proceed along such lines as are indicated below.

Completion tests. One of the simplest devices to be used in testing the understanding of geographic relationships during this transition period is that of leaving out critical words in well formulated statements of such relationships. For example, the . . . of the seas between Britain and the mainland, the many good . . . along its coasts, and its location on . . . are among the natural advantages which help to explain the importance of its foreign trade. By filling in these blanks with the words "narrowness," "harbors," and "islands," the child shows that he understands something of the relation of British trade to the factors of nearness to the European mainland, good harbors, and insularity.

After formulating a course of study, then, in accordance with the scheme suggested above, one has material which can be converted into testing material by simply omitting critical words in the statements of cores of thought and of geographic relationships. Moreover, sentences may be

found in texts which serve this purpose. Care must be taken to avoid, in selecting such statements, any which illustrate fallacies such as those pointed out above.

Recognition tests. Another means of using paragraphs from texts or courses of study for testing purposes at the end of a group of units, is to supply the groups of relationships or the cores of thought, or both, of various units, omitting in each case the name of the region involved. If children can name each region so characterized correctly, they prove that they associate these groups of relationships with the region where they are exhibited. Such a scheme can be worked in the case of cities as well as in that of regions.

Matching tests. Instead of supplying groups of relationships, such as those used in recognition tests, there might be presented in one list groups of outstanding cultural items which give personality to specific countries indicated, and in another list groups of natural items. The test lies in the matching of appropriate groups of cultural and natural items.

Equipment. In view of the number and variety of books and other materials for the teaching of geography which are on the market, it is of prime importance that those charged with the responsibility for selection should have definite standards by which to judge the qualities of various kinds of equipment.

Reading material. The first requisite in equiping a class for geographic study is a basic text. It is necessary, also, that each pupil have a copy of the book chosen. In some school systems it is the custom to provide a class with a half-dozen copies of each of the texts on the market, and to expect beginners, for example, to come to valid conclusions from the perusal of several different, and frequently conflicting, presentations of a subject. Such a procedure demands on the part of children a maturity of judgment

which only the specialist in the field may be expected to possess. Granted an adequate basic text in the hands of each child, however, there is a place for the use of other texts as supplementary material to be used *after* definite concepts have been developed under the guidance of the textbook.

Additional textbooks, used in the way indicated, become part of the generous amount of supplementary reading material helpful, if properly used, at all levels of instruction in geography. The very term *supplementary,* however, denotes the appropriate use to be made of such literature.

The criteria by which the qualities of textbooks and supplementary reading materials may be judged are as follows:

I. *Geographic quality.* (1) The degree to which the material adheres to the theme of the relationships between man and his natural environment; (2) the quality of pictures, maps, and graphs; (3) the degree of accuracy of facts given; (4) the degree of unity, coherence, and progressiveness in the development of the theme.

II. *Psychological quality.* (1) The degree to which the material is comprehensible to the child for whom it is intended; (2) the degree of appeal that the material makes to children; (3) the quality of the study guide provided, which quality depends on (*a*) the amount and kind of motivation provided, (*b*) the definiteness with which the directions are stated, (*c*) the emphasis which is thrown upon central ideas having geographic quality, (*d*) the suitability of the exercises with regard to the interests and ability of the child, (*e*) the educational quality of the use made of pictures, maps, and graphs, (*f*) the degree to which results are checked and tested, and (*g*) the suitability of the quantity of material to the child's needs; (4) the degree to which the material stimulates desire for further work in geography; and (5) the logic of the organization of the material presented.

III. *Mechanical quality.* The quality of paper, binding, halftones, maps, arrangement of pictures, and of printing, the latter involving consideration of suitability of size of type, spacing, and length of line to the child's needs. The suitability of the size of book to convenience of handling by children should also be considered.

Other materials. Wall maps constitute an important item of equipment. These should be physical maps, with the boundaries of political divisions indicated inconspicuously, rather than political maps. Such maps should include, as a minimum, one of each continent, one of the United States, and one of the world, *not on Mercator's projection*, but on an equal-area projection, with horizontal parallels of latitude. Outline maps, at least of the areas named above, on slated cloth are a great convenience, and outline maps of various areas for desk use are a necessity for effective work.

A physical globe (not relief), twelve inches in diameter or larger, should be provided for each room. A blank slated globe, and one with a similar finish but with the continents outlined, is a valuable addition to classroom equipment.

In the assembling of prints, half-tones, lantern slides, and other museum materials it should be kept clearly in mind that nothing is gained by making collections which are merely interesting; illustrative materials, as in the case of reading matter, for example, should contribute to geographic ends.

Geographic literature. Geographic periodicals which are of value to supervisors and others in aiding them, some in one way and some in another, to keep abreast of developments in the subject include the following:

The Journal of Geography
Economic Geography
Geography (formerly *The Geographical Teacher*)
Annals of the Association of American Geographers
The National Geographic Magazine
The Geographical Review
Travel
Mentor
Asia

Another helpful method of keeping up with the subject, particularly in securing accurate current data of various kinds, is the consistent use of various federal government publications. These include the yearbooks of the Departments of Agriculture and of Commerce, the *Atlas of American Agriculture,* the annual *Statistical Abstracts, Geography of the World's Agriculture,* annual reports of the Commissioner of Fisheries, Farmers' Bulletins, publications of the National Park Service, etc.

In addition to such material, which can be obtained from the Superintendent of Documents, Washington, many state and municipal publications can be readily secured. Authoritative information on foreign countries is published annually in *The Statesman's Yearbook.* One of the most valuable features of this book is the list, for each country, of the sources from which the data are secured.

The newer material on methods is listed by Frederick K. Branom in *A Bibliography of Recent Literature on the Teaching of Geography,* published by Clark University. A book entitled *The Measurement of Achievement in Geography* (Macmillan, 1925) by Mendel E. Branom contains a lengthy bibliography of publications concerned with testing. Information regarding books on the technique of teaching, as well as on subject matter, may be secured from the advertising and review pages of the periodicals mentioned above. It is to be regretted, however, that no one book on the teaching of geography has as yet succeeded in fully demonstrating the application of the basic principles laid down earlier in this chapter. A few courses of study have been published, and others are in preparation, which show encouraging progress in putting into practice a sound philosophy of geography. The new Wichita, Kansas, course of study is one of those which definitely provides for the presentation of geographic relationships.

In evaluating courses of study as they appear from time

to time, supervisors must apply as many as are appropriate of the criteria set up earlier for evaluating texts. Similarly, the merits of new books and other equipment must be adjudged in the light of these standards.

In conclusion, the most basic consideration in the teaching of geography, whether one is concerned with the content material, the method of presenting it, or the tools to be used in so doing, is that from first to last steady growth is to be made by the pupil in the understanding of Human Ecology, in the ability to think in terms of the relationships between human life and the natural environment, and in the power to apply such thinking to everyday life.

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Huntington, Ellsworth, and Cushing, Sumner W., *An Example of Human Geography: Khirghiz Nomads of Central Asia, Principles of Human Geography* (John Wiley & Sons).

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Whitbeck, R. H., *Industrial Geography* (American Book Co.).

Wichita, Kansas, "Elementary Course of Study in Geography."

CHAPTER VIII

THE SUPERVISION OF HISTORY

BY MARY G. KELTY

Supervisor of Social Studies, Training Department, and Instructor in the Teaching of the Social Studies, State Teachers' College, Oshkosh, Wisconsin

Introduction. The general scope of supervision has been defined and delimited in previous chapters. In attempting to apply the principles there enunciated, the supervisor of history is forced to the conclusion that very little of the practice in his subject has been scientifically established as valid. He will have scientific guidance, then, at only a few points; the rest of his course must be based frankly on expert opinion and on that practice in the field which is generally agreed upon as good.

In regard to the organization of supervision, two primary problems present themselves, *vertical* versus *horizontal* supervision, and *departmental* versus *home-room teaching.*

Vertical or horizontal supervision? Should supervision be *vertical,* that is, each major subject under the care of one person throughout all the grades,[1] or *horizontal,* that is, the primary grades under one supervisor, the intermediate grades under another, junior high school under a third, and so on?

The usual practice is to employ the method of horizontal or general supervision. However, a few systems such as

[1] J. Montgomery Gambrill, "Vertical Supervision and a Continuous Program for the Twelve Grades," *The Historical Outlook,* Vol. 15 (1924), p. 37.

the states of Pennsylvania and New York, and the cities of Oakland, California, and Detroit, Michigan, employ the vertical plan for the following reasons: (1) Coördination of work among elementary, junior, and senior high schools is imperative. (2) The course throughout should be coherent and cumulative, the purposes unified. (3) Only the specialist supervisor can attain that wide knowledge of a field that will enable him to serve as a consulting expert.

A school system, then, is faced with the necessity of choosing its plan of supervision, and of so perfecting its organization as to take advantage of expert leadership in each field and yet to harmonize the whole.

Departmental or Home-Room Teaching in Elementary Schools? When departmental teaching first began in the upper grades of the elementary schools, enthusiastic advocates urged its adoption in the middle grades also.[2] Some schools tried the experiment at that time and an increasing number seems to be committed to the plan at present. Others decided after several years' experience that it was unsuited to younger children. The prevailing practice to-day seems to be to departmentalize instruction in the junior high school, but to continue most of the work in the elementary school, outside the so-called *special subjects,* on the one-teacher plan. The Dalton laboratory method, however, is encouraging departmentalization or specialization even in the intermediate grades. Carefully controlled experiments might well be conducted to enable progressive teachers or principals to subject their preferences and prejudices in this matter to verification.[3]

The objectives of the teaching of history. Any formulation of objectives should begin with the objectives of

[2] Van Evrie Kilpatrick, *Departmental Teaching in Elementary Schools* (Macmillan Co., 1908).

[3] E. Becker and N. K. Gleason, "Departmentalization in the Intermediate Grades," *The Elementary School Journal,* Vol. 28, Sept., 1927, pp. 62-66.

general education, which topic, however, lies outside the scope of this chapter.

Next should follow a formulation of the objectives of the social studies as a group,[4] which also lies outside the province of the present discussion.

Specific objectives of history. Our present concern is with the objectives of history.[5] At the outset we must realize that there are no scientifically established objectives that are generally accepted by educators, such as may be found for example in spelling, although numerous studies have been made in the history field. What then, is the supervisor to do while more complete experimentation is being carried on? He will find that present-day objectives are set up by two methods; one, a study of social needs as determined by scientific study of society; the other, a statement by experts in history as to what values this particular subject can supply which other fields either do not supply or do not supply so fully.

The supervisor will probably consider objectives set up by both methods, using the one as a check against the other, until such time as the scientific studies shall have been completed and agreement arrived at among specialists and educators. Many extravagant claims will be largely discounted.[6]

The following tabulation (1) shows the objectives formulated on the basis of opinion, by various subject committees, by students of history, and by writers in the field of education.

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[4] G. A. Mirick, "The Social Subjects in Grades V and VI," *The Elementary School Journal*, Vol. 27, April, 1927, pp. 585-591.

[5] Tyler Kepner, "Training the Teacher in Service," *The Historical Outlook*, Vol. 18, Oct., 1927, p. 274. A bibliography on aims and values.

[6] Fremont P. Wirth, "Ultimate Objectives and Goals of Achievement for History in the Public Schools," *The Historical Outlook*, Vol. 19, March, 1928, pp. 117-119. A recent evaluation that states certain principles by which the objectives are to be chosen.

THE OBJECTIVES DISCUSSED BY NATIONAL COMMITTEES,

TABULATION I	Date.	Broaden the mind, cultivate judgment and reasoning. Teach to think.	Preparation for intellectual enjoyment; interests; tastes.	To exercise influence on national affairs.	Counteract a narrow and provincial spirit.	Good citizenship; participation.
COMMITTEES:						
Committee of Ten, N.E.A.	1893	×	×	×	×	×
Committee of Seven, A.H.A.	1898	×	....	....	....	×
Committee of Eight, A.H.A.	1908	....	....	....	....	....
Committee on Social Studies of the Commission on Reorganization of Secondary Education, N.E.A.	1914–1916	....	....	....	×	×
Committee on History and Education for Citizenship, N.E.A., A.H.A.	1918–1921	×	....	....	....	×
WRITERS ON HISTORY:						
Hinsdale, B.A., *How to Study and Teach History*	1893	×	×	×	....	×
Kemp, E. W., *An Outline of Method in History*	1896	×	×	....	....	....
Bourne, H. E., *The Teaching of History and Civics*	1902	×	×	×	×	....
Salmon, Lucy, *Principles in the Teaching of History*	1902	×	×	....	×	....
McMurry, C.A., *Special Method in History*	1903	....	....	....	×	....
Keating, M. W., *Studies in the Teaching of History*	1910	....	....	....	×	....
Hartwell, M. A., *The Teaching of Hist. in the High Sch.*	1913	....	....	....	....	....
Davis, C. O., *Guide to Methods and Observation in Hist.*	1914	×	×	....	×	×
Wayland, J. W., *How to Teach American History*	1914	×	×	....	....	×
Johnson, Henry, *Teaching of History*	1915	×	×	....	....	....
Jarvis, C. H., *Teaching of History*	1917	....	....	....	....	....
Kendall, C. N., and Stryker, F. E., *History in the Elementary School*	1918	×	×	....	×	×
Hill, H. C., in *The Historical Outlook*, Vol. 12, pp. 310-315, 1921	1921	×	×	....	....	....
Klapper, Paul, *The Teaching of History*	1926	×	×	....	....	....
Osburn, W. J., *Are We Making Good at Teaching History?*	1926	×	×	....	....	×
WRITERS ON EDUCATION:						
Monroe, Paul, *Principles of Secondary Education*	1914	....	....	....	....	....
Judd, C. H., *Psychology of H. S. Subjects*	1915	×	....	....	....	....
Freeman, Frank, *Psychology of the Common Branches*	1916	....	....	....	....	....
Betts, G. H., *Class Room Method and Management*	1917	×	×	....	×	....
Rapeer, L. W., *Teaching Elementary School Subjects*	1917	×	....	....	....	....
Bobbitt, Franklin, *The Curriculum*	1918	....	....	....	....	....
Inglis, A., *Principles of Secondary Education*	1918	×	×	....	....	×
Bonser, F., *The Elementary School Curriculum*	1920	....	×	....	....	×
Philipps, C. A., *Modern Methods and the Elementary Curriculum*	1923	....	×	....	....	×
Snedden, David, in *The Teachers' College Record*, Jan.	1924	....	×	....	....	×
Total number of times mentioned	.....	18	17	3	9	13

STUDENTS OF HISTORY, AND WRITERS ON EDUCATION

Medium for literary expression.	Moral training; ethical concepts.	Ability to generalize; to draw logical inferences.	To teach facts used in reading, conversation, etc.	Understanding of institutions; of environment.	Appreciation of change, development, nature of state and society.	Tolerance; open-mindedness.	Historical mindedness; investigating evidence; search for truth.	Systematizing facts: cause and effect.	Training in handling books.	Training of the imagination.	Training in oral expression.	Help in coöperation and loyalty. Group membership.	Social efficiency; socialization.	Responsibility of the individual.	Patriotism.
×	×			×											
	×		×	×	×	×	×	×	×	×	×				
×	×			×											
	×	

The studies that have attempted to collect data on social needs have centered on such subjects as the activities a good citizen carries on, the citizenship material he talks and reads about, what traits he considers desirable, etc. Following is a representative but by no means complete list:

Bobbitt, Franklin, *How to Make a Curriculum* (Houghton Mifflin Co., 1924), pp. 97-128.

———, and others, "Curriculum Investigations," Supplementary Educational Monographs, University of Chicago Press, 1926. Evidence as to the major fields of human concern.

Hockett, John A., *A Determination of the Major Social Problems of American Life,* Teachers College Contributions to Education, Teachers College, Columbia University, 1927.

National Education Association, *Third Yearbook* of the Department of Superintendence (1925), pp. 225-227, 253-255, 266-269. Studies by Cocking and Goss to ascertain the opinions of laymen; and by Peters, to analyze cultural needs.

———, *Fifth Yearbook* of the Department of Superintendence (1927), pp. 239-241, 241-242, 242-243. Studies by Dulebohn to determine civic deficiencies, by Lorenzen to determine approved ways of living, and by Mahan to determine duties and difficulties of citizens.

National Society for the Study of Education, *Seventeenth Yearbook,* Part I (1918), pp. 63-80, 81-89, 90-96. Studies by Bassett on political platforms and references to modern political problems, and by Marston, McKown, and Bagley on misplacements of emphasis by comparison of texts with standard references.

———, *Twenty-second Yearbook,* Part II (1923), pp. 216-233, 234-259, 260-273. Studies by Washburne as to historical allusions in periodical literature; by Horn as to library withdrawals; by Rugg as to problems of contemporary life.

Rugg, E. U., *Curriculum Studies in the Social Sciences and Citizenship* (Greeley, Colo., 1928).

The supervisor is confronted with the difficult task of going through a mass of material such as that given above and selecting out those elements most commonly agreed upon; he must then select again those which seem best

attainable by the means of instruction in history. Very helpful analytical discussions are those given by Johnson and Hill.[7] Hill's keen evaluation of different objectives may be illustrated by the following:

False or Inadequate Objectives (*By-Products, Not Ends*)	Legitimate Objectives
To develop a narrow patriotism[8]	"Historical-mindedness"
To inculcate morals	The search for truth
To assist in the study of literature, geography, etc.	Demanding evidence
	Examining both sides of a question
The transfer theory	Understanding of dependence of present on past
	Lasting intellectual tastes

A usable form in which objectives may be drawn up follows:[9]

I. *The objectives of general education; of elementary education.*
II. *The objectives of the social studies; of the social studies in the elementary school.*
III. *The objectives of history:*
  A. Ultimate Objectives.
    1. Understandings.
      Understanding of present-day institutions.

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[7] Henry Johnson, "The Question of Aims and Values," *Teaching of History* (Macmillan Co., 1915). *See also*, H. C. Hill, "History for History's Sake, *Historical Outlook*, Vol. 12, Dec., 1921, pp. 310-315.

[8] For a treatment of the whole matter of patriotism *see* Bessie Louise Pierce, *Public Opinion and the Teaching of History* (Alfred A. Knopf, 1926), and A. K. Heckel, "Pure History and Patriotism," *The Historical Outlook*, Vol. 16, Mar., 1925, pp. 106-110. For an interesting apologia for the teaching of patriotism through history *see* The New York City Board of Education, Report on History Textbooks Used in the Public Schools, 1920.

[9] M. E. Herriott, "How to Make Courses of Study in the Social Studies," Bureau of Educational Research, Bulletin No. 5, Vol. 24, University of Illinois, 1926. Gives a much more elaborate classification.

2. Attitudes.
   (*a*) Historical-mindedness; search for truth; examining both sides of questions; demanding evidence.
   (*b*) Tolerance.
3. Interests and tastes.
   Love of reading.

B. Immediate Objectives.
1. Understanding.
   Of movements (each unit considered separately).
2. Generalizations: principles deduced from units.
3. Concrete meanings.
   Concepts: vocabulary mastery.
4. Fixed associations.
   Minimal essential facts.
5. Skills.
   Map making; construction, etc.

IV. *Specific objectives of history in the elementary school.*

Children's interests and capacities and the difficulty of the subject matter used as means will largely determine the gradation of objectives. Few authors have attempted to formulate specific objectives for elementary-school history, and no scientific studies have been made.

The best that the supervisor can do, then, is to check the general scientific studies against the opinions of experts in the history field, psychologists, and curriculum-workers. For example, Miss Salmon [10] suggests as objectives for the first four grades: (1) to foster interest in the past, (2) to stimulate the imagination by vivid pictures; and (3) (for the later grades) to stimulate the enthusiasms. Judd [11] proposes the reorganization of courses with regard to psychological analysis so that the emphasis throughout the

[10] Lucy Salmon, "Principles in the Teaching of History," The *First Yearbook* of the National Society for the Scientific Study of Education, 1902, pp. 55-56.

[11] C. H. Judd, *Psychology of High-School Subjects* (Ginn & Co., 1915), pp. 456-457.

earlier years may be placed on "ability to comprehend a coherent narrative of successive events" without much attempt at analysis. Later he would have the child begin to "understand the physical facts that influence history, making at this stage of the course a correlation between history and geography," that would demand power of comparison and associative thinking. Klapper[12] proposes a threefold aim for the first four years: (1) to give young children a simple historic insight into the past by a study of some of the older types of civilization; (2) to familiarize children with the facts that explain the common celebrations; (3) to acquaint the children with a few of the most illustrious leaders in the history of mankind. For the fifth and sixth grades he proposes a "complete and well organized story of the development of present institutional life."

The writer has proposed elsewhere[13] as *tentative objectives* for the history work of the intermediate grades: 1. A love of the subject. 2. "Ability to comprehend a coherent narrative of successive events." 3. An elementary realization of the influence of geographic and economic forces. 4. The ability to use books. Certain of the courses of study recently published have listed divisional aims[14] for the elementary school, some of which can very well be attained through the study of history. Others have listed specific grade objectives.[15] for each of the first six grades, and have then proceeded to select material and activities to carry them into effect.

From the foregoing discussion, it may be seen that the

[12] Paul Klapper, *The Teaching of History* (D. Appleton & Co., 1926), pp. 163-164.

[13] M. G. Kelty, *Teaching American History in the Middle Grades of the Elementary School* (Ginn & Co., 1928), p. 3.

[14] "General and Divisional Aims," Board of Education, Curriculum Bulletin No. 1, City of St. Louis, 1926, pp. 20-23.

[15] "Social Science Grades One, Two, Three, Four, Five, and Six," Course of Study Monograph No. 20, Public Schools, Denver, Colorado, 1926.

supervisor who wishes to bring to the attention of his school system the question of objectives must first prepare references to the literature on the subject, must bring it before his teachers, and assist them in their discussion of all phases, keeping before them constantly that the objectives are to be stated in terms of desirable changes in children. He must assume leadership in the formulation of general and specific objectives, which are to guide both the selection and organization of materials, and the technique adopted.

Are the objectives being attained? Having come to a tentative conclusion with regard to what objectives to choose, the curriculum builder is then confronted with another problem. How can he judge whether or not the objectives are being attained? Some lend themselves to verification and some do not. Assistance may be had in the works of Stratemeyer and Bruner.[16] For the list of legitimate aims given on p. 353 such lines of evidence as the following might be demanded.

1. *Historical Mindedness:* Seeing both sides of questions
   Are the children willing to present arguments for the unpopular side of issues?[17]
2. *Connecting present with past*
   Do the children bring to class newspaper clippings, magazines, recent books and pictures, etc., bearing on the present-day implications of the topic under consideration?
3. *Lasting intellectual tastes*
   Keep a record of the withdrawal of children's books from the library, or of reading during the reading period.[18]

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[16] F. B. Stratemeyer and H. B. Bruner, *Rating Elementary School Courses of Study* (Teachers College, Columbia University, 1926), pp. 63-64.

[17] M. G. Kelty, *op. cit.*, p. 36, *footnote.*

[18] H. C. Lehman, "Reading Books 'Just for Fun,'" *School Review*, Vol. 34 (1926), pp. 357-364. *See also* Wm. A. King, "The Development of Outside Reading of Elementary School Pupils," *Fourth Yearbook* of the Department of Elementary School Principals of the National Education Association, 1925, pp. 360-366.

The objectives of the intermediate grades (p. 355) may be judged by the following:

1. *Love of the subject*
   The same method as No. 3 above. Also supply children with a typed or printed list of all the school subjects. Ask them to place a (1) before the subject they like best, a (2) before that they like next, etc. Chart the results.
2. *"Ability to comprehend a coherent narrative of successive events"*
   See p. 401, "The Steps of Organization and Recitation." How many of the children can make an acceptable individual outline? How many can tell the complete story?
3. *Influence of geographic and economic forces*
   Thought-tests pointing out relationships.
4. *The ability to use books*
   Devise such a test as that described by Finch.[19]

Problems in objectives. Supervisors should investigate such problems as the following:

1. To what extent can the objectives in history be discovered by studies of social needs?
2. How should the objectives in history for the elementary school differ from those of the junior high school?
3. What is the attitude of your teachers toward patriotism as an objective?
4. What attitude is to be taken with regard to the teaching of morals as an objective?
5. Which of the objectives may admit transfer of training? How? Why?
6. To what extent is every unit of work in the curriculum determined with reference to the objectives?
7. Should different objectives be set up for each grade? For each unit of work?
8. To what extent are the objectives being realized in conduct, especially "demanding evidence," "looking at both sides," "tolerance"?
9. How much of the subject matter in the course carries out the objective "understanding of present-day institutions"?

[19] C. E. Finch, "Junior High-School Study Tests," *School Review*, Vol. 28 (1920), pp. 220-226.

10. How can you determine whether or not children are developing an elementary understanding of the influence of geographic and economic forces?
11. How can you influence your teachers to welcome wholeheartedly the objectives determined upon by the committees?

The course of study: a general survey. *Time allotment.* Ayer's study of time allotments [20] shows that history has risen from *tenth* place among the elementary-school subjects in 1904, to *eighth* in 1914, to *seventh* in 1924; and of the six "subjects" that outrank it, recess is one.

However, no scientifically based time allotment can be

TABULATION II

TIME ALLOTMENTS OF HISTORY IN MINUTES PER WEEK

STUDIES	GRADE					
	I	II	III	IV	V	VI
1. Committee of Ten, N.E.A., 1893					120	120
2. Committee of Eight, A.H.A., 1908	20	20	30	40	60	60
3. Holmes, Time Distribution in 50 Cities, 1914	11	14	24	62	87	92
4. Bureau of Ed. Research, Ohio State Univ. 21 cities, 1923	30	30	34	58	86	144
38 cities, 1923	38	46	48	66	88	108
5. 22nd Yearbook of N.S.S.E. Part II, Table, p. 314, 1923				51	96	127
6. Glass, Curriculum Practices, 1924	Social Studies				122.5	147.7
7. Latham, Study of 60 Cities	Average Minutes per Week in Elementary School 299					
8. Ayer, Time Allotments 49 Cities, 1925	17	19	30	54	84	97
Seattle Schools Hist. and Citizenship	100	30	125	H. 75	135	135
49 Cities, Average of Cities Giving Subject	54	69	65	89	101	110
9. Armentrout,[1] Study of Training Schools in 33 Teachers' Colleges		7	22	83	121	123

[1] W. D. Armentrout, "A Comparison of the Time Allotments of Subjects in Elementary Training Schools"; Carleton H. Mann, "How Schools Use Their Time (Bureau of Publications, Teachers College, Columbia University, 1928) received too late to be included in the studies.

[20] Fred C. Ayer, "Time Allotments in the Elementary-School Subjects," City School Leaflet No. 19, 1925, Bureau of Education, Department of the Interior, Washington, D. C.

devised until there is agreement as to objectives and standards of attainment. In the meantime, a knowledge of what other schools are doing may perhaps be of assistance. The figures do not tell the whole story, since many systems devoting several periods a day to silent reading have begun to utilize historical materials for some of them, but such periods are recorded as "reading."

As to the duration of courses in the elementary school measured by school years, the California Curriculum Study [21] showed the mode to be 5 years, with 4 years and 7 years following in the order given. The report for the elementary course in American History showed the mode to be 1 year, followed in number of courses by 1½ years; for the European Background course, 1 year, followed in number of courses by ½ year.

Thus it may be seen that the tendency is steadily toward the greater emphasizing of history in the elementary school, so far as emphasis can be determined by time allotment.

Elementary history required or optional? One of the few studies that attempts to answer the above question is the California Curriculum Study. The authors [22] show that elementary history is required slightly more often than it is left optional.

Fusion or separation of social study courses? Activity Program or Traditional Subjects? Probably the most difficult problem of the whole field of the social studies at present is whether the social studies should be unified or left separate. The *Twenty-sixth Yearbook* [23] goes into the matter at great length, and the various supplementary

[21] W. C. Bagley and G. C. Kyte, *The California Curriculum Study* (University of California Printing Office, Berkeley, Cal., 1926), pp. 174, 182-183.

[22] Bagley and Kyte, *op. cit.*, p. 176.

[23] The *Twenty-sixth Yearbook* of the National Society for the Study of Education, Part II (1926), pp. 30, 31, 85, 108-110, 116-117, 155.

statements there included, present points of view widely at variance with each other. The discussion lies outside the province of the present chapter, but the conclusion to be drawn is that eminent psychologists and educators can be quoted for either side, and that the practice of the best experimental schools is divided. There is general agreement on unification in the primary grades, but in the intermediate grades a sharp division of sentiment is manifested. An admirable summary of the arguments for an activity program and the arguments for "subjects" has been made by Reeder in "Shall We Discard the Traditional Subjects of Study in the Upper Elementary School?" (*Teachers College Record,* Vol. 30, No. 4 [January, 1929], pp. 310-321). He concludes that progress is to be looked for, in the next few years, through reorganizing and overhauling the school subjects, rather than through a complete activity program. There is not sufficient evidence, however, to warrant any one in stating at present that one theory is superior to the other. Experimentation in reorganizing content and method is needed in both plans.

To be sure, the questionnaire reported in the *Fourth Yearbook* of the Department of Superintendence of the National Education Association (1926) pp. 324-329 shows opinion to be overwhelmingly in favor of unification in the primary grades; in the fourth grade, 80.2 per cent; the fifth, 69.9 per cent; the sixth, 65.8 per cent. These, however, are only opinions and the unquestioned ease of administration of the unified course would naturally have great weight with administrators. To repeat, there is not sufficient objective evidence on either side to warrant a claim of superiority, one way or the other.

Status of state history. There has been in the past considerable emphasis on the teaching of state history. Haun [24]

[24] Harry L. Haun, "The Present Status of State History Teaching in the Elementary Grades," *The Historical Outlook,* Vol. 13 (1922), pp. 346-353.

reported in 1922 that every one of the forty-eight states was either requiring the history of its own growth or was making plans to require it. Since that time the movement seems to have declined. School administrators and curriculum makers agree that state history should be included somewhere in the intermediate grades, but they have been unable to decide where it should be placed or how organized. It is coming more and more to be merged in the larger story of the country, with stress on local activities at the points where they played an important part in national movements, or it is combined with the study of local geography.

Current events. The question of current events in the intermediate grades constitutes another problem. The prevailing practice seems to be not to give it as a separate subject below the junior high school. The very insufficient basis that intermediate-grade pupils possess in history, geography, and civic matters generally, makes such a course seem reasonable. Neither is the reading material in current periodicals suitable for them in most cases. Exceptions are: *My Weekly Reader* (Grades III-IV), and *The News Outline* (Grades V-VI. Not as good as the former), published by the American Education Press, Columbus, Ohio. In several cities, experimental classes have been taught for a semester, and then dropped, the instructors feeling that the time could be used to better advantage along other lines, although the interest of the children was undeniable.

On the other hand, whenever a current topic directly relates to a point that the children are studying or have recently studied, the teacher surely should mention it. Children should be encouraged to search for newspaper clippings, magazine articles and pictures on the topics under consideration. These may be attractively presented on the bulletin board, and made the subject of oral language lessons.

Systematic sequence and grade placement. In arranging the course of study, the supervisor should bear in mind systematic sequence throughout the grades, so that teachers do not constantly repeat the same topics in their endeavors to utilize real-life situations, or, on the contrary, that they do not leave serious gaps in the child's preparation in experience, knowledge, and skills, as, for example, the field of international relations, which the analyses of social needs so strongly emphasize.

Gradation will be determined, according to Charters,[25] by utility, interest, and difficulty of the topics. Mathews' study [26] concerns itself with relative difficulty, and has established that materials such as episodes are comprehended more clearly than other types, and that circular graphs are easier to follow than bar or line graphs. However, not enough has been done to determine with any degree of exactness what subject matter is of "reasonable difficulty" for the normal fourth-, fifth-, or sixth-grade child.

The only scientific studies of grade placement which concern our field in addition to that of Mathews, quoted above, are the tabulations [27] of the different combinations in which American history is taught in the elementary school, and Kyte's study of fifty-three courses published since 1920. Fifty-nine different combinations occurred in the three hundred three cities studied in the Report of the Research bulletin. The combination that occurred most often (54 times) was that of beginning American history in Grade V B, continuing through Grade VIII A; the next

[25] W. W. Charters, *Curriculum Construction* (Macmillan Co., 1923), pp. 97-98.

[26] C. O. Mathews, *Grade Placement of Curriculum Materials in the Social Studies* (Bureau of Publications, Teachers College, Columbia University, 1926).

[27] "Facts on the Public School Curriculum," Research Bulletin of the National Educational Association, Vol. 1, No. 5 (Nov., 1923), p. 333.

combination in point of frequency (46 times) began in IV B and continued through VIII A. No other combination occurred more often than 21 times, hence we may conclude that the prevailing tendency in the United States is to begin history study as such in the fourth or fifth grade. However, the investigation gives no information as to the placement of European or world history. Kyte [28] showed in his study of variations in the organization of elementary-school history courses that most schools had followed one or other of the recommendations of the six committees that have investigated grade placement in the last thirty-five years. Their recommendations, however, have differed so greatly that if one was followed, then necessarily none of the others could be. He found sixteen types of combinations from the fourth to the eighth grade.

One-Cycle or Two-Cycle Treatment? A great deal of discussion has been aroused by the proposal to make a one-cycle treatment of world history in the grades, including the junior high school, rather than covering the field on one level in the intermediate grades and on another in the junior high school. Winnetka [29] employs such a plan. Morrison recommends a somewhat similar organization. (See p. 390.) Tryon [30] also presents a one-cycle plan. The Denver and St. Louis courses of study are moving in the same direction.

An examination of Tabulation III (pp. 373-377), however, and of W. C. Bagley and G. C. Kyte's *California Curriculum Study* shows that the most common agreement among all courses is that of presenting each period twice.

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[28] George C. Kyte, "Variations in the Organization of the Elementary Courses of Study in History," *Educational Administration and Supervision*, Vol. 13, Sept., 1927, pp. 361-376.

[29] "Materials for the Individual Technique," Horace Mann School, Winnetka, Illinois.

[30] R. M. Tryon, "The Social Studies in the Curriculum, Grades I to VI," *The Historical Outlook*, Vol. 19, March, 1928, p. 129.

Present practice, then, is widely at variance with the one-cycle theory, whatever its advantages may be.

The course of study: principles and practices. *Principles of selection of content.* One of the most widely known statements of the principles of selection is Parker's.[31] He gives three main principles: (1) Subject matter should be selected according to varying social needs. (2) It should be selected according to the relative value of topics, relative importance to be judged by a scientific procedure. (3) The curriculum should be adapted to pupil maturity.

In the carrying out of the first principle for selecting materials in history much of the purely political, dynastic, and military matter stressed so strongly in early history texts can be seen to have little value for the understanding of our present complex institutional life. On the other hand much more historical background is needed for our present-day social, industrial, and economic life. Thus the first principle may be seen to have much in common with one of our ultimate objectives, "The understanding of present-day institutions." The change from oral to silent reading, mentioned in Parker's chapter referred to above, has profoundly affected the method of study, and, indirectly, the nature of the materials in history. The adapting of subject matter to different communities is seen in the course in local history, and in the inclusion of state history in the story of the nation at those points where the state was particularly influential.

To determine relative values, a considerable body of scientific studies is available for the student of history. In those phases where studies have not yet been made, expert

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[31] S. C. Parker, *General Methods of Teaching in Elementary Schools* (Ginn & Co., 1919), pp. 84-111. *See also* S. C. Parker and Alice Temple, *Unified Kindergarten and First-Grade Teaching* (Ginn & Co., 1925), pp. 51, 56-57.

opinion must be relied upon. The following list presents some of the scientific studies of content and learning implications from which relative importance and difficulty may be judged:

AYER, Adelaide M., *Some Difficulties in Elementary School History* (Bureau of Publications, Teachers College, Columbia University, 1926). Ascertaining children's difficulties by comparing responses to difficult paragraphs, and to the same material simplified. An analysis of types of difficulties, especially that of abstract ideas.

BAGLEY, W. C., "The Determination of Minimum Essentials in Elementary Geography and History," *Fourteenth Yearbook* of the National Society for the Study of Education, Part I (1915), pp. 131-139, 141-146. A study of geographical and historical allusions in newspapers and magazines. Comparison with school texts as to space allotment to periods, and as to numbers of personages.

———, and RUGG, H. O., "The Content of American History as Taught in the Seventh and Eighth Grades: an Analysis of Typical School Textbooks," Bulletin of the University of Illinois, 1916. Reported in the *Sixteenth Yearbook* of the National Society for the Study of Education, Part I (1917), pp. 143-155. A study of names, topics, and the relative proportions of textbook space devoted to the different periods.

BARNES, Mary S., *Studies in Historical Method* (D. C. Heath & Co., 1896). Experiments to determine children's understanding of history.

HELSETH, Inga O., *Children's Thinking* (Bureau of Publications, Teachers College, Columbia University, 1926). A study of the improvement in thinking about questions in history, and in ability to answer the questions according to children's own plans.

KEBOCH, F. D., *Variability of Seventh-Grade Historical Material as Judged by Word Difficulty in Five Modern Textbooks.* Unpublished Master's Thesis, University of Pittsburgh, 1925. Keboch's findings as to vocabulary difficulties may be utilized by teachers in the elementary school also.

KELTY, Mary G., "Time Expressions Comprehended by Children of the Elementary School," *The Elementary School Journal,* Vol. 25, March, April, 1925, pp. 522-528, 607-618.

An analysis of children's readers to ascertain which time expressions are most commonly used, followed by a test to determine children's mastery of time ideas.

LIVINGSTON, Ralph, "The Interrelations of the Vocabularies in Public-School Subjects," *Educational Research Bulletin* No. 10, Vol. 5 (May 12, 1926), Ohio State University. A study to determine which part of the history vocabulary is part of the common vocabulary and which part is peculiar to history.

MELTZER, H., *Children's Social Concepts* (Bureau of Publications, Teachers College, Columbia University, 1925). Tracing the development of concepts needed in contemporary life. Interview method.

NASON, J. M., *International Relations as Revealed by Editorials, Cartoons, and Textbooks in American History,* Unpublished Master's Thesis, University of Chicago, 1925. A study of the emphasis given in school histories and in periodicals.

NEUMANN, G. B., *A Study of International Attitudes of High-School Students* (Bureau of Publications, Teachers College, Columbia University, 1926). An attempt to discover the attitude of students on international matters, and the strength of their convictions.

OSBURN, W. J., *Are We Making Good at Teaching History?* (Public School Publishing Co., 1926). A study of examination questions in history and a comparison of the questions with the objectives.

PRESSEY, Luella, *The Technical Vocabularies of the Public-School Subjects: History* (Public School Publishing Co., 1924). The vocabulary used in history texts.

RUGG, Earle, *Studies in Curriculum Construction in the Social Sciences,* Unpublished Ph.D. dissertation, Library of Teachers College, Columbia University, 1923. An analysis of social-science textbooks.

RUGG, H. O., and HOCKETT, J., "Objective Studies in Map Location," Social Science Monograph No. 1, Lincoln School of Teachers College, New York, 1925. Ranking of map locations based on population, foreign trade, bank clearings, areas, and allusions in works of "frontier thinkers" and in periodicals.

———, "A Proposed Social Science Course for the Junior High School," *The Twenty-second Yearbook* of the National Society for the Study of Education, Part II (1923), pp. 185-

207, 260-273. Minimal essentials determined by books on modern problems.

SHOWALTER, B. R., "Dates and Historical Perspective," *The Historical Outlook,* Vol. 19, Jan., 1928, pp. 28-31. Shows which dates children knew best at the end of the sixth grade, and analyzes the types of dates to which the largest number of successful responses were given.

STRATEMEYER, F. B., and BRUNER, H. B., *Rating Elementary School Courses of Study* (Bureau of Publications, Teachers College, Columbia University, 1926), pp. 1-9, 63-68, 138-142, 152, 167-168. Objective standards for judging history courses.

WILLIAMS, B. M., *A Critical Study of Possible Methods of Evaluating Biographies for the Purpose of Curriculums in the Social Studies,* Unpublished Master's Thesis, University of Iowa, 1926.

WOOTERS, J. E., "Elementary American History Standards," *School and Home Education,* Vol. 34, Dec., 1914, pp. 152-155. The judgment of historians as to which dates in American history are most important.

The studies reported above will help the supervisor to determine with a greater degree of certainty than ever before, what content to choose as to periods, dates, persons, places, and terms, and how much time to devote to each. McMurry [32] gives the following principles for the selection of materials: (1) *Motivation.* The children not only must know what they are doing and are about to do, but the exercise must be of such a nature that children *want* to do it. If a skillful teacher cannot make the appeal so strong that children approach the activity with zest, it is misplaced in the curriculum. (2) *Initiative.* Any curricular material so rigid in its nature that neither teacher nor pupil can express individuality in its execution is misplaced. (3) *Weighing of relative values.* (4) *Provision for organization.*

The staff of the Lincoln School of Teachers College presents an entire chapter on the "Criteria for Selecting

[32] F. M. McMurry, *Elementary School Standards* (World Book Co., 1913), pp. 5-12.

Units of Work'' in their *Curriculum Making in an Elementary School* (Ginn and Co., 1927).

Principles of organizing material. Parker's principles of organization [33] are: (1) Subject matter should be organized as an intensive study of carefully selected large topics, rather than as an encyclopædic study of many short choppy topics. The sequence, however, should be systematic, so that each stage lays a broad foundation for what is to follow. (2) Subject matter should be organized psychologically, that is, as children learn it most effectively, rather than logically, in terms of the subject itself. It must be adapted to the pupil's capacity for learning, which in turn is affected by his natural maturing and his experiences.

The intensive study recommended provides for vivid experiences and therefore for understanding. Supplementary readers, class activities, construction, and dramatization, help to give vivid impressions, better understanding of relationships, training in organizing material, and in applying general principles—none of which are possible when many small topics must be considered. The project method has helped to emphasize the organizing of material into large topics. Many details are necessary to support the general concept, but they are all related ideas. In time the details are forgotten,[34] but the ''feeling-of-meaning'' remains.

In history, organization in terms of the learner instead of in terms of the subject is illustrated by the discarding of presidential administrations as units of study, and presenting instead large forces and movements, which the child can *understand,* but need not *memorize.* Likewise political,

[33] S. C. Parker, *General Methods of Teaching in Elementary Schools* (Ginn & Co., 1919), pp. 113-156. *See also,* J. L. Meriam, *Child Life and the Curriculum* (World Book Co., 1920), pp. 237-252.

[34] R. L. Archer and others, *The Teaching of History in Elementary Schools* (Adam and Charles Black, 1916), pp. 19-31.

constitutional, and military history are being subordinated to social and economic elements, and the detailed biographies of kings and statesmen are being cut down to allow for a study of the "common man." Moreover, it is coming to be understood that history must be *lived* in order to be understood, therefore the approach must concern itself with *supplying the child with experiences* that will help in interpreting any given historical movement.

Bonser [35] gives a very helpful series of guiding principles, which are significant for history teachers:

1. The approach should be through problems in present-day living.
2. Only that part of history which has contributed to significant social changes is of value for children.
3. Such changes have been along the lines of discovering or controlling natural resources, of developing means of cooperation, of the expression of spiritual life through literature, art, and music.
4. The subject matter should include selections from the whole range of human life, not just from the field of American history. Both should be included in the elementary school, but not pursued at the same time.
5. Relationships with other subjects should be utilized as fully as possible.
6. Each of the peoples studied should be considered in such wealth of detail that a real concept of their ways of living may be formed.
7. For sources, children should not be limited to one text, but should read widely.

It may be of value to repeat Bobbitt's [36] list of the activities by which children learn: (1) reading, (2) picture-study, (3) oral report, (4) observation, (5) actual performance, (6) repeating, prolonging, and intensifying experience, (7) problem solving, and (8) generalization.

[35] Frederick G. Bonser, *The Elementary School Curriculum* (Macmillan Co., 1920), pp. 298-300.

[36] Franklin Bobbitt, *How to Make a Curriculum* (Houghton Mifflin Co., 1924), pp. 44-62.

Teachers are too much accustomed to relying on reading alone, or on reading and oral report, disregarding the other six activities. Bobbitt [37] also gives a list of assumptions and guiding principles in the field of history which are invaluable to the supervisor:

1. History can present imaginative reconstructions of the experiences of social groups.
2. It should reconstruct the experiences as living forms.
3. History is primarily a means of social experience or vicarious participation for children.
4. Historical experiences are to be lived, not memorized.
5. Using history for general training consists of reading it with enjoyment.
6. An abundance of reading material is necessary.
7. Readings should always be accompanied by good maps.
8. Pictures should be used to develop the basic imagery.
9. Factors of every kind need to be considered: geographical, biological, psychological, economic, political, and religious.
10. History will be studied to discern the forces and influences at work in the world.
11. Current events will be regarded as manifestations of those forces and influences.
12. A knowledge of the movements will remain in memory as the concrete facts sink into oblivion.
13. Generalizations must grow out of concrete experiences.
14. Facts are not the important desideratum, but intellectual and social growth resulting from having relived human history.
15. The growth in historical-mindedness should be continuous throughout the years of education.
16. Historical research is not a valid objective for children, and the technique of the professional historian must not determine the technique of using history for general education.

McMurry [38] states that the teacher must draw the line clearly between history on the one hand and mythology,

[37] Franklin Bobbitt, *op. cit.*, pp. 115-116.

[38] C. A. McMurry, *Special Method in History* (Macmillan Co., 1903), pp. 18-23.

folklore, and literature on the other hand. Mythology and folklore are largely concerned with the religion and philosophy of peoples, and are therefore unsuited for the use of young children except for the pure story element. Literature offers one of the best methods of enlivening history but the teacher should adopt the attitude of the scientific historian in regard to the validity of the material she selects. Only books and materials pronounced reliable by experts should be used.

McMurry gives a helpful list of exclusions; in fact, many of his "don'ts" are more nearly in line with modern thought than are his "dos." The "exclusions" are: (1) anything like a full chronology, (2) a brief systematic survey of the history of the whole world, (3) genealogies, (4) periods of no value to young children, (5) the extensive study of wars and military campaigns, (6) generalized philosophical statements, (7) contemporary history.

Problems in selection and organization for investigation by the supervisor.

1. Does your course of study conform to the principles set up by Parker? By Bonser? By McMurry? By Bobbitt? By the Staff of Lincoln School?
2. Does your course of study recognize the results of the investigations quoted? (pp. 365-367).
3. Determine psychological arrangement of specific subject matter by results of control and experimental groups.
4. Prove experimentally which holidays are best suited to the lower grades.
5. Arrange a program of holiday celebrations so that, in every grade, the child is presented new material.
6. Experiment with the grade placement of the story of prehistoric man.
7. How many social types can be studied intensively in one year?
8. What time allotment should each unit in the course of study receive?
9. Prepare a list of "Minimal Essentials" for the world's story, based on the scientific studies.

A detailed examination of the course of study. The following tabulation shows grade placement according to committee reports, to the recommendations of writers on the teaching of history, of writers on education, and a few representative courses of study. Thus we may obtain a cross-section view of what history instruction in the elementary school includes at the present time.

The first and second grades. The newer courses of study almost universally agree as to the study of home and community in the first and second grades. The curriculum centers around such topics as school, home, food, clothing, shelter, the farm and community activities, all of which belong properly to the field of the *Social Studies.* Only the holiday and special-day celebrations can be classed as *History,* and even these, since the cumulative, developmental factor is absent, are properly not history but *stories from history.*

However, through emphasis on such matters as what happened *last week, last Christmas, last autumn,* etc., the time concepts are being developed which lay the foundation for later work in history. The names of the days of the week, the seasons, the months, etc., are learned at this time.

Which holidays are suitable for the first grade? The question has not been answered by scientific study, therefore the best that can be done is to set up a tentative list, and apply to each item the tests for selection mentioned above. One of the best treatments of this subject is to be found in Parker and Temple.[39]

An examination of courses of study now in use shows the following special days observed in first and second grades: Labor Day, Columbus Day, Hallowe'en, Election Day, Armistice Day (Peace Day), Thanksgiving, Christ-

[39] S. C. Parker and Alice Temple, *Unified Kindergarten and First-Grade Teaching* (Ginn & Co., 1925), pp. 170-173.

TABULATION III

THE HISTORY CURRICULUM IN THE ELEMENTARY SCHOOL: RECOMMENDATIONS AND PRACTICES

	Date	Grade I	Grade II	Grade III	Grade IV	Grade V	Grade VI
CURRICULUM REPORTED BY COMMITTEES.							
1 Committee of Ten, N.E.A. and A.H.A.	1893	.....	.....	.....	.....	Biography and Mythology.	Biography and Mythology.
2. Committee of Fifteen Dept. Supt., N.E.A.	1895	Oral lessons in general history and biography; sixty minutes a week throughout the course. From native land to England to classic civilizations.					
3. Committee of Seven, A.H.A. (one member's report).	1899	.....	.....	Stories from Greek History, Norse Myths, King Arthur, Roland, Hiawatha.	Biographies from the history of Greece, Rome, Germany, France, England, Southern Europe, Northern Europe, America.	Greek and Roman History to about 800 A.D.	Mediaeval and Modern European History.
4. Committee of Eight, A.H.A.	1908	Local events. Primitive life. Indians, Holidays.	Primitive life, Indians. Holidays. Local History.	Historical scenes and persons in different ages. (Listed)	Historical scenes and persons in early American history. (Listed)	Historical scenes and persons in later American history. (Listed)	European Background.
5. Committee on History and Education for Citizenship, A.H.A. and N.E.A.	1921	Indians. Coming of the white men.	Making of the local community.	How Europeans found America.	How Englishmen became Americans.	American History through the Civil War.	American History to the present. (½ year.)
BOOKS BY WRITERS ON HISTORY.							
1. Gordy and Twitchell, *A Pathfinder in American History.*	1892	Oral stories of American History.	Oral stories of American History.	Explorers and discoverers; Colonization, Wars, the Republic to 1865.	Same topics but with their geographic backgrounds.	Same topics expanded.	Same topics expanded.

THE HISTORY CURRICULUM IN THE ELEMENTARY SCHOOL: RECOMMENDATIONS AND PRACTICES—*Continued*

	Date	Grade I	Grade II	Grade III	Grade IV	Grade V	Grade VI
2. Kemp, E. W., *An Outline of Method in History.*	1896	Aryan life: homes, religion.	Persian life, Jews, Egyptians.	Greek life.	Roman life.	Saxon life, the Normans, Feudalism.	English history; the development of the English government.
3. Bourne, H. E., *The Teaching of History and Civics.*	1902	History stories of Greeks, Romans, chivalry, and adventure.				Consecutive account of the American People (Biographical and descriptive).	Ancient and Mediaeval History.
4. Salmon, Lucy, *Principles in the Teaching of History.*	1902	Stories from the Iliad, Odyssey, Norse stories, Indians, Arabian Nights, Robinson Crusoe.		Biographies of men prominent in history.		Ancient history to 800 A.D.	Mediaeval history.
5. McMurry, C. A., *Special Method in History.*	1903	No history stories.	No history stories.	Only the stories connected with holidays.	Pioneer stories of discovery and settlement, especially from the home state. European history stories.	Pioneer history stories of places farther away. European history stories.	
6. Bliss, W. F., *History in the Elementary School.*	1911	Primitive civilizations in first four grades.				Topics in history and legend from Charlemagne to Napoleon.	Topics in history and legend from Charlemagne to Napoleon.
7. Wayland, J. W., *How to Teach American History.*	1914	Easy history stories, local subjects, Indian life, biography stories.	Columbus, Primitive life, holidays.	Colonial stories, state history, story of steam, holidays.	Discovery and exploration, story of iron, holidays.	European Background. The Colonies.	The struggle with England, formation of the Union, Indians.
8. Klapper, Paul, *The Teaching of History.*	1926	Stories of local community activities, some elementary processes, types of civilization, stories of heroism, of holidays, of local history.				American history.	American history.

THE HISTORY CURRICULUM IN THE ELEMENTARY SCHOOL: RECOMMENDATIONS AND PRACTICES—*Continued*

	Date	Grade I	Grade II	Grade III	Grade IV	Grade V	Grade VI
BOOKS BY WRITERS ON EDUCATION.							
9. Rapeer, L. W., *Teaching Elementary School Subjects.*	1917	Primitive life: Indians.	Primitive life: pastoral, agricultural.	Beginnings of trade, travel and discovery. Local history.	American history.	American history.	European history.
10. Betts, G. H., *Class Room Method and Management.*	1917	Oral stories based on celebration of special days. Pioneers. Indians.		Stories from European history: Hebrew, Greek, Roman, Norse, English. Holidays, Pioneers, State history.		American history and biography.	American or American and English History.
11. Bonser, Frederick, *The Elementary School Curriculum.*	1920	.....	Primitive life. Early settlers in America.	Indians, Hebrews, transition from hunting to pastural life. Colonial life.	Stories of the Greeks and Romans.	Mediaeval history stories. Early American History.	European Background. American History to the present.
12. Phillips, C. A., *Modern Methods and the Elementary Curriculum.*	1923	Holidays.	Holidays.	Local history. Hebrews, State history. Holidays	Local history. Primitive life.	Local history. and biography.	European Background.
13. Glass, J. M., *Curriculum Practices in J.H.S. and Grades V and VI.*	1924	.....	.....	.....	.....	Early Civilizations; European Background. Early American History.	Early Civilization. Early American History (through the Revolution).
COURSES OF STUDY CHOSEN AT RANDOM.							
1. Baltimore County Course of Study.	1919	Holidays. Indians.	Holidays. Primitive Life: Indians.	Local historical stories. State history. National historical stories.	Early American History.	American History from Revolution to present.	European Background.

THE HISTORY CURRICULUM IN THE ELEMENTARY SCHOOL: RECOMMENDATIONS AND PRACTICES—*Continued*

	Date	Grade I	Grade II	Grade III	Grade IV	Grade V	Grade VI
2. Philadelphia Course of Study in History.	1917	Indian Life. Holidays.	Indian Life. Holidays.	Heroes of legend and history.	Local history. Life in the colonies.	The Revolution to the Present. Incidents and Biographies.	European Background.
3. North Carolina State Course.	1919	Primitive Life. Holidays.	Primitive Life. Holidays.	Primitive Life. Holidays.	Local history. Discoverers and explorers. Stories from Other Nations	Story of the U. S. Stories from other nations.	State History.
4. Chicago Course of Study.	1923	.....	.....	.....	Exploration thru French and Indian Wars. Local history.	From the Revolution thru the Civil War.	European Background.
5. Passaic, N. J.	1923	Holidays.	Primitive Life. Cave, Tree ,and Sea People. Indians Holidays.	Hebrews. Holidays.	Greeks and Romans, French and English.	Biography, stories up to Revolution. U. S. History from Revolution to present.	European Background.
6. Minnesota State.	1923	Holidays.	Holidays. Primitive life.	Hunting, Fishing, Pastoral, Civilized Man, Coming of White Man to America.	Indian life. Story of Minnesota.	American History.	European Background.
7. Francis W. Parker School (Chicago).	1923	Primitive Man.	None.	Growth of Chicago.	Greek Life.	Exploration and Discovery.	American History: Westward Expansion and Immigration.

	Date	Grade I	Grade II	Grade III	Grade IV	Grade V	Grade VI
8. Salt Lake City.	1924	Holidays. Pioneer stories. Selected stories.	Selected stories. State historical stories.	Selected stories. State historical stories.	Pre-pioneer history of the state; pioneer history.	Stories of Early American History.	Stories of Later American History.
9. Denver.	1926	Holidays.	Holidays.	Indian life.	Colonial life; Westward movement.	.....	Inventions and discoveries.
10. St. Louis.	1926	Holidays.	Primitive man. Holidays. Biographies.	Pioneer life; biographies.	Past and present of the local community. World Historical stories.	History in Relation to Geography.	American History and World Historical stories.
11 The California Curriculum Study Recommendation.	1926	Primitive Life, Home, School, Community.	Same as Grade I.	City and County History; World Heroes and American Heroes.	State History.	Elementary American History.	European Background of American History.
12. Kyte's Study of 53 Courses Published Since 1920.	1927	Home and Community.	Community. Primitive Life.	Primitive Life. Heroes of the past and local history.	Early American History. State History.	Recent American History.	European Background.

mas, New Year's, Lincoln's Birthday, Valentine's Day, Washington's Birthday, Easter, Arbor Day, May Day, Mother's Day, Memorial Day. The third-grade list adds Benjamin Franklin's Birthday, Inauguration Day, Flag Day. The study of the lives of the following men are also suggested: Roosevelt, Wilson, Harding, Hoover, and Pershing.

Labor Day, Election Day, Armistice Day, and Inauguration Day are based on concepts which children in the primary grades do not possess, and on experiences with which they have had no contacts. Clearly, then, these should be omitted from the curriculum. Columbus Day should probably be omitted in grades below the third, by which time children are in possession of reading powers which may profitably introduce them to the subject.

Thanksgiving Day as a day of giving thanks may well be included even in the first two grades; and in the third, the story of the Pilgrims may be added. Outside its setting, however, it probably will have little significance. The stories of Washington and Lincoln have little meaning for very young children, but they reflect the interest they see manifested in the community; while Easter, St. Valentine's Day, Memorial Day, and Hallowe'en represent certain concrete experiences to them, and are therefore legitimate subjects of study. Christmas is such an important day to primary children, that preparation for it may well take a month's time, beginning even in the kindergarten.

The placing of the emphasis needs to be carefully considered. The larger social significance of all these days is lost to small children. Emphasis, therefore, should probably be placed on what the child himself can do, on the part he can take, etc. Care should also be exercised to see that the associations formed are correct. For example, the art and construction work for Washington's Birthday should *not* center around the story of the cherry tree, or

pictures of hatchets. Flag Day preparation should not center around the story of Betsy Ross. There can be little value, also, in cutting silhouettes of the head of Franklin in preparation for the celebration of his birthday.

The lives of such men as Roosevelt, Wilson, Harding, Hoover, etc., are bound up with such complex social situations that the children have few points of contact with them.

Very suggestive methods of attack on the problem of holiday celebrations are presented in the following brief selections from the St. Louis Course of Study and the Denver Course.[40]

Helpful suggestions as to holiday celebrations throughout the elementary school may also be found in the Philadelphia Course of Study, Kendall and Stryker's work,[41] Wayland's book and Miss Hazeltine's volume. The art phases of the holiday work are treated in such volumes as Sargent and Miller's, and in certain courses of study, such as Denver's and St. Louis's, in some art magazines.[42]

The "unification" plan of organization is almost universally used in first and second grades, one project serving as a center of interest, to which reading, language, con-

[40] "Social Studies for Kindergarten and Grades I-IV," St. Louis Curriculum Bulletin No. 6, pp. 21-33, 44-45, 64-68, 90-101. *See also* "Socializing-Integrating Activities for Kindergarten and Grades I-VI," St. Louis Curriculum Bulletin No. 9, 1926, pp. 16-17, 22-23, 26-31, 88-93.

[41] "The Course of Study in History," Grades I to VIII, for the Public Schools of Philadelphia (1917); C. N. Kendall, and F. E. Stryker, "Concerning Holidays," *History in the Elementary School* (Houghton Mifflin Co., 1918), pp. 122-130; J. W. Wayland, *How to Teach American History* (Macmillan Co., 1914). *See also* Mary E. Hazeltine, *Anniversaries and Holidays* (American Library Association, 1928).

[42] W. Sargent and E. Miller, *How Children Learn to Draw* (Ginn & Co., 1916), pp. 6-76; the art courses in the course of study of Detroit, Denver, etc.; *The School Arts Magazine* (Davis Press, Worcester, Mass.); and *Everyday Art* (The American Crayon Co., Sandusky, Ohio).

THE ST. LOUIS COURSE

KINDERGARTEN Specific Objectives	Suggested Procedure	Outcomes
To learn to appreciate the importance of beauty as applied to the home. To develop ability and desire to cooperate.	Hallowe'en, Thanksgiving, Valentine's Day, Washington's Birthday and May Day are splendid occasions for parties for the kindergarten-primary children. Introduce the decoration of plates and the making of other attractive decorations for the tables and for the room in connection with such parties.	Ability to be well behaved guests.
To realize that love, loyalty, and helpfulness are essential to a happy home life. To develop respect and reverence for our country's flag. To develop an interest in national holidays.	Making presents for parents at Christmas. Inviting parents to parties.	Development of a spirit of love, loyalty, and helpfulness toward members of the family.
	(17 activities named)	(7 outcomes mentioned)
To awaken interest in outstanding heroes of America.	(5 activities named)	(2 outcomes mentioned)
	(3 activities named) Help children to plan and carry out a Washington and Lincoln celebration.	(5 outcomes mentioned)

struction and drawing, music, and all other subjects contribute their special values.[43]

The third grade. The third-grade curriculum in history is the great "No Man's Land" of the elementary field. No central tendency can be discovered; one marked trend is to continue the unsystematic, sporadic instruction characteristic of the first two grades; and another is to begin some systematic, coherent study organized in a more orderly manner. By this time children are supposed to be sufficiently "socialized" to be acquainted with their community surroundings. They appreciate somewhat the significance of food, clothing, shelter, and know in general how these wants are supplied. They are ready therefore to launch themselves into vicarious experience. They are ready to learn how other peoples approach the same problems, and to find likenesses and differences. They are in command of sufficient reading skills to become acquainted with peoples distant in time and place.

Social types of various kinds will therefore be set up tentatively as subjects of study. Which types? The Eskimo is widely accepted but from the criterion of what connection he has with present-day civilization, or what contribution he has made, the inclusion seems scarcely justified, except as a geographical study.

A noticeable omission from the recent courses of study is the story of prehistoric man. Some years ago when the culture-epoch theory was accepted as the basis of the educative process, the stories of tree-dwellers, lake-dwellers, cave-dwellers, etc., occupied a prominent place in even first-grade curricula. Many excellent texts were prepared, texts that are still valuable. But at present the placement of the study of prehistoric man has undergone a change. Kindergarten, first- and second-grade curricula are being

[43] *The Classroom Teacher*, Vol. V, pp. 497-554, presents a good unit-fusion course for primary grades.

AN EXTRACT FROM THE CHART ON HOLIDAYS—DENVER COURSE OF STUDY[1]

GRADE I	GRADE II	GRADE III	GRADE IV	GRADE V	GRADE VI
Home life.	Group life.	Indian life in America. Child life in foreign lands.	Colonial life. Westward movement.	Interdependence.	Interdependence
Columbus Day. Columbus's contribution to the world stated briefly. Stories of his childhood. The work of his father.	Columbus's pleasure and interest in watching the boats come to and depart from wharf. What he came to believe from watching the boats.	Story of how Columbus obtained help for his journey. Story of voyage and meeting of Indians on coast.	Story of Marco Polo and his influence upon Columbus. Reason for search for new routes.	Other voyages of Columbus. His reward, his disgrace, death and final vindication.	The value to the world of the discovery made by Columbus.
Hallowe'en. The care of other people's property.	The golden rule applied to fun.	Special emphasis on behavior. Promotion of harmless bits of fun.	Continue third-grade program.	Origin of Hallowe'en.	Responsibility of older children for the encouragement of harmless fun.

1 "Social Science, Grades One, Two, Three, Four, Five, and Six. Elementary School," Denver Course of Study Monograph No. 20, 1926, Public Schools, Denver, Colorado, pp. 332-337.

AN EXTRACT FROM THE CHART ON HOLIDAYS—DENVER COURSE OF STUDY—*Continued*

GRADE I	GRADE II	GRADE III	GRADE IV	GRADE V	GRADE VI
Thanksgiving. Meaning of the day. Things to be thankful for. Sharing with others.	A simple account of the first Thanksgiving Day. Sharing with those less fortunate in the community.	Indian guests on the first Thanksgiving. Festivals for Thanksgiving in foreign lands.	Comparison of observance of our Thanksgiving and that of the Pilgrims.	Comparison of the things the Puritans were thankful for and the present-day benefits derived from the country they settled.	President's proclamation. Its significance.
Washington's Birthday. First President. The story of the making of the flag. Significance of colors.	Stories of the boyhood of Washington.	As a young man—sailor, surveyor. Devotion to mother. Rules of conduct.	As a Virginia gentleman.	As the commander of the Colonial army.	As President.

constructed more and more around children's experiences in life settings. Obviously, prehistoric culture does not belong there; it has been shifted upward in the course.

Prehistoric man has made an undoubted contribution to our present civilization, but to visualize his surroundings and image his manner of living requires to an extreme degree the power to disassociate ideas. Do third-grade children possess such power? Unfortunately, no one can answer that question. The tendency, however, seems to be to transfer the unit on the prehistoric man to the beginning of World History, to be studied later in the intermediate grades. The same excellent texts referred to above are still being used there.

The types of primitive life about which there is a good deal of agreement as suitable third-grade material are: Indians,[44] Arabs as typifying the weavers of the world, and the Vikings. Of these, the Indian type [45] seems to be the most widely used. Seldom are more than four groups studied, sometimes only two; Indians of the plains, woodland Indians, and "pueblo" Indians are probably the most common. The study usually centers around the experiences of a group of children, into whose life story is woven that of their people—food, clothing, shelter, recreation, education, work, etc.

In the third-grade curriculum there still remains the difficult problem of whether or not the local history of the community should be included, a matter on which there is a great deal of controversy. In favor of its inclusion is presented the argument that it forms a natural bridge from social types to systematic history, that it localizes the study so that concrete imagery is possible, that it awakens interest because of the intimate associations involved, and that

[44] S. C. Parker, and Alice Temple, *op. cit.*, pp. 176-177.

[45] Staff of Lincoln School, *Curriculum Making in an Elementary School* (Ginn & Co., 1927), pp. 145-157.

through it history becomes real and living. Doubtless, when teachers are prepared to analyze and assemble the materials, all these values may be attained. A number of studies [46] of local history may prove valuable, but the inclusion of an entire semester of local history still must justify itself on the score of relative values. On the other hand, there are serious difficulties [47] in administering such a course. Teachers and supervisors are as a rule absolutely unprepared for the exceedingly difficult and intricate task of evaluating and assembling the materials. They are, in many cases, new to the community; its history and even its traditions are unknown to them. They are untrained in the examination of historical evidence; they do not know where to look for materials. The State Department of Education can not make out a course that will fit all communities. If there is a college nearby whose history department will coöperate, or if a special research worker can be employed, or if authoritative histories of the city have already been written, then the supervisor and his corps of teachers can easily adjust the materials for presentation to children. If not, the attempt to present a course in local history had probably better not be made.

A caution should also be given with regard to the practice of presenting as *local* history, a study that may have been made of a neighboring city, or of the entire state. For example, Miss Jennie Hall has prepared a valuable *Story of Chicago*. Some nearby communities, assuming that what

[46] "Social Studies for Kindergarten and Grades I-VI," St. Louis Curriculum Bulletin No. 6, 1926, pp. 130-157. "The Course of Study in History for Elementary Grades III, IV, V, and VI," Cleveland, Ohio, 1922, pp. 9-15; "The Course in History," Francis W. Parker, School Studies in Education, 1923, pp. 55-88; Jennie Hall, *The Story of Chicago* (Rand, McNally & Co., 1911); Mary Fitzpatrick, "History Project for the Grades: Pioneer Life in Cleveland," *The Historical Outlook*, Vol. 14, Feb., 1923, pp. 68-71.

[47] J. J. Findlay, *History and Its Place in Education* (University of London Press, 1923), pp. 62-67.

applies to Chicago is probably true of their city also, have adopted the same text. From an adult point of view, there may be little difference between such a study and the presenting of real, local history; from the point of view of the child there is little similarity. If the study is to be of value, it is in making vivid and real the story of what has been, in connecting vague stories in a book with this particular bend in the river, that point in the lake, or an old building that the child has always known. Such a study enables him to live through the story in an experiential way that satisfies, because it has a basis in reality. To move the scene one hundred miles away, is to remove it entirely from the child's world; then it is as foreign and alien as ancient history.

In conclusion, then, whether or not local history should be included in the third-grade curriculum depends on the ability of supervisors or research assistants to assemble the materials.

Fourth, fifth, and sixth grades. The fourth-grade work is in a most unsatisfactory condition. The common curriculum material is biography study. Many times the stories are heterogeneous, to say the least; now a story of Greek life, then an American explorer, a Norse myth, a chevalier of the middle ages, or a pioneer in the westward movement. However, there has come to be an understanding [48] that not much satisfaction can be derived from the story of Alexander without some appreciation of the world in which Alexander lived, that the story of Cortez is unintelligible without some knowledge of Spanish exploration. In other words, the value of such scattered, disconnected stories may be questioned, even as stories.

Some school systems which have been concentrating for

[48] Marion G. Clark, "A Study in Testing Historical Sense in Fourth- and Fifth-Grade Pupils," *The Historical Outlook*, Vol. 14, April, 1923, pp. 147-150.

many years on the problem of reading have brought their pupils to such a mastery of the reading process that they are in desperate need of factual materials. They feel that children in the third and fourth grades are being starved mentally because materials and methods underestimate their powers. Many such systems are bringing down from the fifth grade to the fourth, or even to the third, a systematic treatment of American history, thus expanding it into a two-year course, and leaving either a year or a year and a half for world history in the sixth grade or in Grade V-A and all of Grade VI.[49]

The fifth grade shows a greater agreement as to content than any other grade of the elementary school. The more recent periods of American history constitute the course in most cases. The sixth grade shows an almost equal agreement on European backgrounds as the subject of study. In general, the newer and better courses choose a somewhat systematic treatment of American history and world history in the fourth, fifth, and sixth grades; and consider American history as, on the whole, better suited to the lower levels. (See p. 392.)

The scientific studies referred to (pp. 365-367) warrant the following conclusions: (1) Emphasis should be shifted away from the purely political. (2) The life of the common man should be stressed, along with the biographies of heroes. (3) The modern phases should receive proportionately more emphasis than the more remote. (4) State history tends to become merged into the story of the nation, although given special emphasis in that story. (5) The objectives are being determined both by a study of social needs, and the opinions of experts.

A controversial question in the organization of history for the intermediate grades is the question of biographical,

[49] Martha Willard, "History Project—A Semipageant," *The Historical Outlook*, Vol. 16, Oct., 1925, pp. 278-280.

topical, or chronological arrangement. The older books asserted confidently that children's chief interest is in people, and that therefore history should be presented in these grades as a series of biography stories,[50] or in other words, that events should be grouped around the lives of great men.

Recently curriculum makers and supervisors have begun to question the assumption. Widespread dissatisfaction with the results of the biographical methods has led to such studies as Miss Clark's.[51] Her test results led her to the conclusion that even fourth-grade children can appreciate change and development, and that therefore a straightforward story is better suited to them than a mere collection of biographies. Biography should by no means be neglected, but men should be grouped about events rather than events about men.

The chronological order [52] possesses the great advantage of preserving the time element, that is, of showing the gradual unfolding of the life story of the race. It is continuous, cumulative, developmental. The disadvantage is that, carried to the extreme, it prevents following any one line of thought far enough to be able to trace causal sequence; for example, if the presidential administration is the unit selected, the attention and interest keep constantly shifting from one event to another because they occurred at about the same time.

Many authors present what they call a counter-chronological method. It usually develops, however, that what they are referring to is a method, not of organization, but of approach only. The plan is that in attacking the study of any institution, its present status is first examined. This

[50] C. A. McMurry, *Special Method in History* (Macmillan Co., 1903), pp. 38-49.

[51] Marion G. Clark, "A Study in Testing Historical Sense in Fouth- and Fifth-Grade Pupils in Cleveland Heights," *The Historical Outlook*, Vol. 14, April, 1923, pp. 147-150.

[52] Findlay, *op. cit.*, pp. 52-62.

is a method of approach very commonly used in many different techniques, and does not mean that the status of the institution is studied as of 1920, then 1910, then 1900, then 1890, etc.

The topical or causal arrangement has one special excellence; it follows one train of events through to a logical conclusion and shows clearly the cause and effect relationships. The disadvantage is that in attempting to follow one topic, for example, slavery, from the beginning to the end, we find somewhere in the middle of the study that it is inextricably bound up with the question of our industrial improvements. Shall we stop and try to pick up the second line of thought, so as to carry them through together? If so, it is not long before the question of the tariff enters too. Shall we try to include it also? In other words, if we attempt to pursue one topic throughout its entire length we find it inexplicable; if we stop to study the other factors which influenced it, we find ourselves attempting to handle many threads at once, and that is not the topical method. We are not able to secure anything like a cross-section view of conditions at any era. Moreover, the time relationships that are the very essence of the story of change and development, are thereby lost.

What is being attempted in many quarters as a solution of the problem is a combination chronological-topical-biographical method, with a wholesome elimination of much traditional content. The main units roughly follow each other in time; the material within a unit is studied topically; biography is woven into the story when necessary.

Organizing history into units and subunits. The following list of units for American history is taken from Kelty:[53]

1. Why Men Wanted to Find a Short Route to the East.
2. How the Nations Tried to Get Wealth from the New World.

[53] Mary G. Kelty, *op. cit.*, p. 4.

3. Why English People Came to Live in the New World.
4. How England Came to Own Most of North America.
5. How the English Colonies Came to Separate Themselves from the Mother Country.
6. How the United States Made Itself Respected among the Nations.
7. How the United States Moved Westward to the Pacific.
8. How One Machine Called for Another Until All Our Methods of Living Were Changed.
9. How the Slavery Question almost Split the Nation into Two Parts.
10. How the United States Became Really United in Spirit.
11. How the United States Became a Great Industrial Nation.
12. How the United States Became a World Power.

The following suggested units for an elementary course in The World's Story are taken from Morrison: [54]

1. How People Lived before Civilization.
2. Civilized People Who Did not Read and Write as We Do.
3. A Wonderful People Who Taught the World.
4. Another Wonderful People who Made the World into One Nation.
5. The Coming of Christianity.
6. Civilization Was Once Destroyed.
7. Another World Religion.
8. The European People Learn Christianity.
9. A New Civilization.
10. A New World Discovered.
11. Kings and People.
12. Our Own Country Begun.
13. How People Used to Earn Their Living.
14. How Factories Came About.
15. Keeping Slaves and What Came of It.
16. The Coming of Science.

Each unit is broken up into learnable subunits.[55] Each story is then organized [56] as a whole, in the attempt to get

[54] H. C. Morrison, *The Practice of Teaching in the Secondary School* (University of Chicago Press, 1926), p. 197.

[55] *See*, for example, M. G. Kelty, *op. cit.*, p. 89.

[56] Criteria for judging organization may be found in F. B. Stratemeyer and H. B. Bruner, *op. cit.*, pp. 64-67.

away from day-by-day lesson learning. Introductory discussion shows the relation of the story to present institutions; reading lists graded as to difficulty are presented; minimal essentials in vocabulary, dates, places, and personages are taught and drilled upon; illustrative materials listed; projects presented; and then the entire story is organized as a unit. See pp. 397-402 for a detailed discussion as to the method of treatment of each story or subunit.

Bagley in the *Classroom Teacher* (Vol. I, Vol. V, Vol. VIII, Vol. XI) gives a suggestive list of topics for fourth, fifth, and sixth grades, and an excellent, detailed discussion of each.

Summary. Attempting now to summarize the tendencies in the history curriculum, we may state rather confidently that holiday and special-day celebrations constitute the only subjects of a strictly historical nature in the first and second grades in the newer courses and those marked "better" by the Stratemeyer and Bruner study.

The third grade shows the widest possible divergence; there are no generally accepted topics. Those used most commonly are: primitive man, local history of the community, Hebrew stories, Greek and Roman myths, and stories of great Americans. The fourth-grade program is as heterogeneous, including local history, colonial life, the westward movement, Greek myths, hero stories of the middle ages, and stories of great explorers, although the influence of the report of the Committee of Eight begins to be noticeable here, and many schools are beginning a somewhat systematic study of American history at this point. The fifth grade, on the contrary, shows a remarkable degree of uniformity. The history of America is studied here in almost every instance. The sixth grade displays a strong tendency toward agreement on the European background to American history, although American history is preferred in some cases.

What is not agreed upon by the specialists is whether the American history or the world history should come first. In favor of placing world history first is the argument that it logically precedes and furnishes the setting for American history, and that it puts the emphasis on world relationships from the beginning. In favor of placing American history first is the argument that its materials are closer, on the whole, to children's interests and experiences, that one hears allusions to it more frequently, and that there are more reading materials available on lower grade levels.

Problems in the course of study for investigation by the supervisor.

1. How can you determine whether or not the fused course in the social studies is superior to separate courses in history and geography?
2. Which is better adapted to young children's interests and experiences, world history or American history?
3. Which holidays and special days are appropriate objects of study in first grade? Second? Third?
4. Shall you attempt a course in the local history of the community?
5. How can the curriculum be organized so that the different subjects will support and reënforce each other so far as practicable?
6. At what time during the day should the history lesson be placed?
7. Which method gives the best results—concentration in time (that is, a lesson every day for a semester or a year), or distribution of time (that is, two days' work a week for a year, two years, etc.)?

Methods of teaching. One hesitates to mention *method* because of the greatly exaggerated importance some teachers attach to it. They seem to expect that a system of ready-made rules can be handed out, rules that can be easily learned, and applied to any and every situation, regardless of knowledge of the subject, or understanding of the basic philosophy of the technique.

No *method* can be so used. Method is merely a technique, an ordered way of doing.[57] It cannot offset shortcomings such as vagueness in objectives, ignorance of undercurrents or moving forces in the history treated, poorly selected or poorly organized materials, or indifference on the part of the teacher.

On the other hand, that certain ways of doing are superior to other ways, goes without question. If it could be ascertained objectively what things good teachers do, what defects are characteristic of poor teachers, what basic technique produces the best results under measured conditions, what methods apply best to the interests of children of different ages, and to different types of material, then if the usual practices in the field could be brought up to the level of those proved "best," the general level of teaching would be raised noticeably.

The supervisor and teachers having, up to this point, (1) clearly formulated the objectives; (2) considered the sequence of material throughout the grades; and (3) selected and organized the content with reference to certain guiding principles, will now find it necessary to make an intensive survey of the literature on method in teaching history.

Immediately, a multiplicity of terms presents itself; references are made to the *story-telling method, the type-study method, the project method, problem method, biographical method, unit method, contract method, topical method, textbook method,* etc. In addition there are many *types* of lessons: inductive, deductive, study lessons, drill lessons, review, and many others.

Must the teacher learn a different method for each of these? Or is there duplication of principles, but differentiation in name? A valuable simplification of terms and

[57] I. E. Miller, "The Principles of Method," *Education for the Needs of Life* (Macmillan Co., 1917), pp. 199-295.

principles in this complex and rather incoherent field has been effected by Burton.[58] The supervisor might well outline all the types of lessons he expects to use, according to this plan, in order to ascertain the relationships between the principles involved. Morrison[59] gives a still simpler classification. Frasier and Armentrout[60] show that the particular method to be used on one day or a series of days depends on the objectives, the nature of the child, and the nature and needs of society. The principles to be applied are self-activity, enriching and interpreting experiences, and organizing experiences. Henderson[61] gives a valuable series of chapters on "Forms of Procedure in Teaching."

Method in first- and second-grade history. The history in these grades consists, as we saw on pp. 372-381, of holiday and special-day celebrations. For this work an informal oral-story-telling method is generally used. The story is told for enjoyment only, therefore the lesson is of the appreciation type. The emotional reaction is all important; the child must feel a keen interest in the story; he must derive satisfaction from the way in which it is told or the exercise is a failure. There are no valid tests of appreciation, but with very small children their expressions of pleasure, their undivided attention, and their requests for more, are reliable indices. The teacher's main problem is to devise an apperceptive approach; in the celebration of special days such methods of approach are easy. Whether or not children like and admire the teacher will condition

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[58] W. H. Burton, *Supervision and the Improvement of Teaching* (D. Appleton & Co., 1922), pp. 98-253.

[59] H. C. Morrison, *The Practice of Teaching in the Secondary School* (University of Chicago Press, 1926), pp. 89-99.

[60] G. W. Frasier and W. D. Armentrout, *An Introduction to Education* (Scott, Foresman & Co., 1924), pp. 103-118.

[61] J. L. Henderson, *Materials and Methods in the Middle Grades* (Ginn & Co., 1928).

materially the response [62] and the attitudes set up. The supervisor may find it helpful to put into the hands of the teachers some of the references on story-telling in history.[63]

In addition to story-telling the teacher will make use of picture study, dramatization, and construction work of many kinds. Art periodicals give valuable suggestions.

Method in third-grade history: the project method. The most commonly employed technique in the third grade seems to be the project, or problem-project method. So much has been written on this subject that it may suffice here to give a very brief treatment.[64]

What has often been denominated the project *method* will upon study of the references be found to refer rather to a scheme of organization of material to accompany the activity program. No special technique has been devised. The chief characteristics of the project seem to be: (1) the element of purposefulness on the part of the child; (2)

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[62] S. C. Parker, "Forming Habits of Harmless Enjoyment," *Types of Elementary Teaching and Learning* (Ginn & Co., 1923), pp. 466-501. A very helpful chapter.

[63] J. J. Findlay, *History and Its Place in Education* (University of London Press, 1923), pp. 83-97; C. H. Jarvis, *The Teaching of History* (Oxford Press, 1917), pp. 55-63; C. N. Kendall and F. E. Stryker, *History in the Elementary School* (Houghton Mifflin Co., 1918), pp. 10-21; J. W. Wayland, *How to Teach American History* (Macmillan Co., 1914), pp. 126-142; W. C. Bagley, "Advantages of the Story Treatment," and "Dangers in the Story Treatment," in *The Classroom Teacher* (Classroom Teacher, Inc., Chicago, 1927), Vol. III, pp. 429-432.

[64] "List of References on the Project Method in Education," United States Bureau of Education, Library Leaflet No. 17, Washington, 1923; Tyler Kepner, "Training the Teacher in Service," *Historical Outlook*, Vol. 18, Oct., 1927, pp. 275-276; H. B. Alberty, *A Study of the Project Method in Education* (Ohio State University Press, 1927); G. E. Freeland, R. M. Adams and K. H. Hall, *Teaching in the Intermediate Grades* (Houghton Mifflin Co., 1927), Chs. vii and viii; W. H. Kilpatrick, "School Method from the Project Point of View," *The Classroom Teacher, ibid.*, Vol. I, pp. 203-240; Lincoln Elementary School Staff, *Curriculum Making in an Elementary School* (Ginn & Co., 1927).

emphasis on activity, both mental and physical; (3) the drawing upon any and all fields for the successful carrying out of the center of interest; (4) the actual accomplishment of the plan; and (5) judgment by the children themselves as to the degree of success achieved. Parker [65] emphasizes the following points in regard to the technique of project teaching: it requires (1) wide knowledge of many fields; (2) executive ability in organizing and directing subdivided labor; (3) skill in guiding pupils in problematic thinking, that is, in guiding the pupils (*a*) to define the problem clearly, (*b*) to keep it in mind, (*c*) to make a variety of suggestions, (*d*) to criticize and evaluate each suggestion, and (*e*) to organize the thinking systematically and summarize the outcomes at intervals as the work proceeds.

Many subjects and many activities are called into play by one project: reading, story-telling, picture study, observation, geography, nature study, music, art, construction, excursions, actual performance of function. The problem or project furnishes the point of departure and is the focus of interest. Subject lines are of little importance except as they suggest possible sources of materials.

Method in fourth-, fifth-, and sixth-grade history: the unit or Morrison plan, a plan for combined group-and-individual progress. The beginning of a systematic, planned program in the fourth grade, suggests that the technique of handling the material should be a well integrated one. The technique described by Morrison [66] seems to the writer superior in this respect to any other. Accordingly, his "science-type" technique will be adopted as the basis of discussion, and as each step is taken up in turn, we shall

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[65] S. C. Parker, "Project Teaching," *Elementary School Journal*, Vol. 22, Feb., 1922, pp. 436-437.

[66] H. C. Morrison, *Practice of Teaching in the Secondary School* (University of Chicago Press, 1926), pp. 220-316.

find most of the older isolated "methods" integrated by Morrison's philosophy into a coherent scheme, or technique, each contributing to the whole the particular service for which it has been found best suited. The writer [67] has presented elsewhere a complete working out of American history according to this plan.

We shall have occasion many times in the course of the discussion to refer to the *mastery formula* guiding the process: that is, *pretest, teach, test, diagnose results, adapt procedure, teach and test again* to the point of mastery; and to the *learning cycle* which may be thus expressed as an equation: need + stimulus + response = adaptation.

The *mastery technique* first of all organizes the curriculum into large units. (See pp. 389-390.) In this respect it is similar to the project method. The units are stated in the form of *problems* challenging solution; we might say this is the topical method, since all the material within a unit bears on the same problem, movement, or topic. Each unit is worked through by the successive steps of *exploration or preparation, presentation, assimilation, organization, and recitation.* The limits of the present chapter forbid any extended discussion; we shall be forced to confine ourselves to a general view of the technique, and a study of the relationships existing between its component parts and other disassociated methods.

Method in the step of exploration or preparation. The step of exploration attempts to discover what, if anything, the children already know about the new unit, in order to avoid reteaching, and on the other hand, to avoid assuming that children have a background which they do not possess. It consists of an oral conversation between teacher and pupils and might well be termed a *conversation lesson.* It is the "pretest" part of the mastery formula that supplies the "need" element of the learning cycle, and provides for

[67] Mary G. Kelty, *op. cit.*

apperceptive approach and a favorable attitude of mind on the part of the learner toward the new unit.

Method in the step of presentation. When the children's knowledge of the new topic has been exhausted, the teacher presents to the class in bold outline the main idea of the new movement, or puts clearly before them the problem that is to be solved. In the history classes of the intermediate grades the "overview" is more common, although many of the subpoints will be handled as problem lessons.

The presentation, then, will be seen to partake somewhat of the nature of a story-telling exercise, but the "story" is a preview, not a detailed statement, nor a "lecture." This is the "teach"-ing part of the mastery formula, a "stimulus" member of the learning cycle. The principle of analysis constitutes the psychological basis, that is, the mind naturally first apprehends any new idea as a whole and then proceeds to analyze it into its component parts, the same principle as that applied in teaching beginners to read.

The presentation is followed immediately by the presentation test, consisting in the fourth and fifth grades of the "new-type" objective test questions; usually in the sixth, of a coherent paragraph or composition showing the pupil's comprehension of the idea given in the presentation story. After studying the test results, diagnosing the failures, and adapting the presentation to meet the difficulties disclosed thereby, the teacher divides the group. Those whose papers showed mastery proceed to the step of assimilation; the other group hears the story again, is tested again, etc., until all have grasped the basic idea.

Method in the step of assimilation. Up to this point the class has been conducted as a group, or a social unit. During the step of assimilation,[68] progress is entirely individ-

[68] Jessie L. Duboc, "History and Geography in Intermediate Grades," *Normal Instructor and Primary Plans*, Vol. 37, Jan., 1928, p. 26. Help on assignments and tests during the assimilative period.

ual; therefore the method might be called a scheme of *combined group-and-individual progress.* The entire work of this step both as to content and method is planned to provide for individual differences.[69]

During assimilation a great variety of activities is carried on, and therefore a large number of parallels can be drawn with the other *methods.* Most of the time is spent in *supervised study.* Each child reads for several days at a time, following a mimeographed assignment sheet, on which the assignments are carefully graded at different levels. Study questions are included.[70] Extensive reading is demanded, and remedial treatment applied to difficulties, as would be done in any reading lesson.[71]

This we may designate as the *textbook-and-collateral reading* method. Reading is the principal activity during most of the step of assimilation, which with intermediate-grade children may last from three days to two weeks. Reading material is kept in the classroom, since its use is an indispensable feature of the technique. Diagnosis of difficulties at this time is concerned either with the ordinary reading difficulties, or with the matter of the special vocabulary of history. Marked attention is now being given to the problem of vocabulary.[72]

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[69] *Second Yearbook* of the Department of Superintendence of the National Education Association (1924), pp. 201-206.

[70] Nellie E. Moore, "An Analysis of Study Questions Found in Textbooks for the Intermediate Grades," *The Elementary School Journal,* Vol. 27, Nov., 1926, pp. 194-208.

[71] W. L. Uhl, "Scientific Determination of the Content of the Elementary School Course in Reading," University of Wisconsin Studies in the Social Sciences and History No. 4 (1921), pp. 108-152; Carter V. Good, "The Relation of Extensive and Intensive Reading to Permanency of Retention," *The Pedagogical Seminary,* Vol. 33 (1926), pp. 43-49; and H. P. Cooper, "Supervisory Projects," *The Fifth Yearbook* of the Department of Elementary School Principals of the National Education Association (1926), pp. 421-440.

[72] Adelaide M. Ayer, *Some Difficulties in Elementary School History* (Bureau of Publications, Teachers College, Columbia University,

In addition to reading, there are in the step of assimilation the *picture-study* lesson,[73] the *theme-illustration,* and the *sand-table or construction lessons,* none of which needs specific explanation. *Map-study lessons* are used continually to emphasize the geographic background. The "tracing of undercurrents" is an essential part of the study; the oral discussion[74] that follows the prolonged reading period centers on this point.

Development lessons are most used in the specific teaching of historical terms and the development of their basic concepts.[75] These should be listed definitely, so that the teacher may select certain terms to teach in connection with each unit.

Drill lessons are used in making automatic the responses to the arbitrary or fixed associations necessary, in such matters as dates, events, persons, and their achievements.[76]

1926); Ralph Livingston, "The Interrelations of the Vocabularies in Public-School Subjects," *Educational Research Bulletin* No. 10, Vol. 5, May 12, 1926, Ohio State University College of Education; Luella Pressey, *The Technical Vocabularies of the Public-School Subjects: History* (Public School Publishing Co., 1924); Mary S. Gold, "Testing Vocabulary in History," *The Historical Outlook,* Vol. 17, Oct., 1926, pp. 285-291.

[73] Cyrus D. Mead, "Visual vs. Teaching Methods—an Experiment," *Educational Administration and Supervision,* Vol. 13, Nov., 1927, pp. 505-518.

[74] M. I. Snedaker, "Correlation of Language and Social Studies in Intermediate Grades," *The Historical Outlook,* Vol. 18, May, 1927, pp. 215-220.

[75] Herman Meltzer, *Children's Social Concepts,* and G. B. Neumann, *A Study of International Attitudes of High-School Students* (Bureau of Publications, Teachers College, Columbia University, 1925, 1926). Interesting investigations of children's social concepts. W. C. Bagley, in Vol. VIII of *The Classroom Teacher* (pp. 690-691) gives helpful teaching procedures.

[76] A. I. Gates, "Functions of Flash-card Exercises in Reading—an Experimental Study," *Teachers College Record,* Vol. 27, Dec., 1925, pp. 311-326; and R. E. Scott, "Flash Cards as a Method of Improving Silent Reading in the Third Grade," *Journal of Educational Method,* Vol. 5, Nov., 1925, pp. 102-112.

Dramatization lessons[77] are means of developing initiative and discovering special abilities.

Test lessons and *examination lessons* are given at the end of the step of assimilation in every unit.

Method in the step of organization. Selecting and organizing into an outline the main points of the story which has just been read in such detail is carried on by a process often called the *coöperative lesson,* that is, teacher and pupils working together. As fast as children develop the ability to work independently, they are allowed to do so. Organization is a reaction member of the learning cycle; it provides training in evaluating the relative importance of events.

Method in the step of recitation. The recitation is an exercise of the "language-arts type," or it may be called an *expression lesson;* at this time the child tells in a connected, coherent manner the story about which he has been reading. It offers a splendid opportunity for correlation of language and history. The form employed may be either oral or written or both. In Grades IV and V there is little emphasis on the written phase, but during Grade VI, it is used more and more. The oral recitation offers opportunity for the *socialized recitation.*

The problems connected with the recitation step are those of all expression lessons; diagnostic and remedial measures are to be based on a definite philosophy of development.[78] Diagnosis will consider whether or not inhibitions have been set up by too early or disproportionate

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[77] S. C. Parker and Alice Temple, *op. cit.*, pp. 227-228; Robert C. String, "Historical Dramatization in the Grades," *The Historical Outlook,* Vol. 17, March, 1926, pp. 130-132; Margaret Welsh, "Informal Dramatization," *The Historical Outlook,* Vol. 17 (1926, pp. 238-241. *See also* Florence Bernd, "Music in the History Course: A Guide to Available Historical Compositions," *The Historical Outlook,* Vol. 17, Nov., 1926, pp. 327-333.

[78] H. C. Morrison, *op. cit.*, pp. 436-452.

emphasis on form. Remedial measures will attempt to focus the child's attention and effort on the thought he wishes to convey, and away from his mistakes.

Method in fourth, fifth, and sixth grades: plans for individual progress, the Dalton Laboratory Plan and the contract plan. The Dalton plan,[79] and such modifications [80] of it as are usually called the *contract plan* have been very widely adopted in the junior high school, and are coming more and more to be used in the elementary grades. The aim of the Dalton plan is to suggest a "way by means of which the school as a whole can function as a community." More emphasis is laid on social experience accompanying tasks than on the subjects of the curriculum. Each pupil is still a member of a class, for which a maximum and a minimum curriculum are drawn up. The subjects of the curriculum are divided up into "contract jobs" of a month's work each. Every subject has its own "laboratory" with appropriate equipment; all students come there to do the work in that particular subject. The usual type of testing measures progress academically; testing the way in which each student manages his work measures social progress. Assignments are in the form of written guides for the pupils' attack on the unit, while various graphs record progress from day to day.

The Winnetka system of individual instruction. The Winnetka system has been best described in the *Twenty-fourth Yearbook* of the National Society for the Study of Education, and in Washburne, Vogel, and Gray, *Results of Practical Experiments in Fitting Schools to Individuals.*[81]

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[79] Helen Parkhurst, *Education on the Dalton Plan* (E. P. Dutton & Co., 1922). History examples may be found on pp. 85-106.

[80] L. L. W. Wilson, "A Method of Training Teachers in Service, The Dalton Laboratory Plan," *Educational Administration and Supervision,* Vol. 14, Feb., 1928, pp. 117-122.

[81] *Twenty-Fourth Yearbook* of the National Society for the Study of Education (1925), Part II, pp. 77-82, 257-272. *See also* C. W.

The courses of study are issued to the pupils in the form of books and notebooks, containing outlines, map folders, and tests. Goal cards indicate to the child whether or not he has mastered material sufficiently to go on to the next unit. Each child works at his own rate on the factual phases, but much coöperative group work is accomplished in such projects as building a mediæval castle, arranging pageants, etc., in the extra time saved through each one's having worked only on his own difficulties.

Summary as to method. It has been shown that sound method alone will not insure good teaching. Formulation and carrying out of legitimate objectives and wise selection and organization of subject matter are also necessary. None of these can effect desirable changes in children except through the instrumentality of a dynamic teacher. Nevertheless it is essential that the teacher become master of a well integrated technique.

Problems in method. The following problems in method are among those that may be investigated by the supervisor:

1. Prepare a list of helpful references on story telling.
2. Should all the teachers attempt to master all the methods enumerated? In which are your weak teachers most defective? Your strong teachers?
3. How may the superiority of one method over another be demonstrated?
4. What is the most effective method of checking each child's comprehension of the books read?
5. Should each teacher prepare her own presentations? How may the best results in each system be used as a standard?
6. Prepare the drill materials.

Washburne, M. Vogel, and W. S. Gray, *Results of Practical Experiments in Fitting Schools to Individuals* (Public School Publishing Co., 1926).

7. Should there be any attempt to standardize the tests given at the end of each unit?
8. How can you encourage the teachers to improve their subject-matter background as well as method?
9. How can you train your teachers in the use of the *mastery technique?*
10. Carry on training experiments in the use of the unit method and the contract method.

Some types of errors and suggestions for remedial work. The types of errors made by teachers in the elementary schools have not been subjected to such critical analysis as is recorded for certain fields of high-school teaching. Therefore a questionnaire was sent to the critics of history and the supervisors in the Oshkosh, Wisconsin, State Teachers' College, asking them to list the most common errors they found, and the type of remedial treatment employed in each case. The results, given below, while necessarily incomplete, may be significant for (1) beginning teachers, in order that they may avoid obvious difficulties; (2) supervisors, in order to learn what remedial measures have proved successful elsewhere, and (3) experienced teachers in order that they may evaluate their own procedures.

ERRORS IN THE APPLICATION OF THE MASTERY TECHNIQUE OR MORRISON PLAN

Errors	*Remedial Treatment*
General Error: The belief that all a teacher must do in order to succeed is to adopt a certain *method;* that thereafter she needs no initiative, she does not have to exert effort, she meets no problems. If 100 per cent efficiency is not achieved, the *method* is obviously wrong.	

I. Step of Preparation

Errors	*Remedial Treatment*
1. Misconception as to the purpose of the step; unwillingness to take time enough to find out what the children already know about the new unit. One teacher admitted, "I was sure my children didn't know the answers to any questions such as you used in the demonstration lesson, so I stopped right there (step of preparation) and taught them the answers."	1. Careful study of the psychological basis of a new technique before its adoption. Gradual adoption, first by the strongest teachers, then by others.
2. Failure to see bases for the new work in the child's experience. (*a*) Lack of interest in finding any basis in experience for the new unit. (*b*) Taking it for granted that the child has had experiences which he has not.	2. In group teachers' meetings skilled teachers present a symposium of probable bases. (*a*) Summer-school courses in education sometimes help arouse the teacher's own interest.
3. Talking about experiences and objects strange to the child before supplying him with such experiences (as *movable type, block printing, compass*).	3. Demonstration lessons. Talking over plans for an entire unit with the weaker teachers *in advance* of teaching it.
4. Wasting time by asking long series of questions that it is practically certain no one could answer without having previously studied the unit.	4. Keep asking as a test question: "Why might I have reason to think that the children probably can answer this?"

II. A. The Step of Presentation

Errors	*Remedial Treatment*
1. Failure to grasp the idea that the presentation gives only the *main* line of thought, or shows the chief relationship between events, or states the problem. Story too long Too many details included Too many new names Use of dates which the children do not know Teacher herself has no objectives to work toward	1. A careful study of the psychological basis of the entire technique before attempting to apply any part of it. Selected teachers give presentations in teachers' meetings after conferences with the supervisor. Mimeographed copies of approved presentations are supplied all the teachers. Teachers wishing to attempt giving presentations come to the supervisor's office for individual help.
2. Use of a vocabulary with which the children are not familiar.	2. Show how to use such studies as Thorndike, *The Teachers Word Book.*
3. Ignorance of the trend of the undercurrents in the history unit.	3. More knowledge of subject matter, given through summer school or extension courses.
4. Failure to emphasize telling points by voice and manner; lackadaisical or perfunctory rendering by the teacher.	4. Practice in story-telling. Invite an expert to give a demonstration. Ask for volunteers to prepare stories for the group to criticize.
5. Failure to look at the children when talking to them.	5. Watch the response. Observers list those they think were not getting the material; prove afterward by the test scores.
6. Failure to summarize points before leaving them, especially if the presentation	6. If the teacher is very poor, she may be asked to write out her presentations, un-

II. A. The Step of Presentation (*Continued*)

test is to be the written composition form.	derlining the summary sentences, until she has mastered the idea.
7. Indifference as to whether or not children enjoy the story.	7. Supply each child with a list of all the subjects he takes. Ask each to mark a (1) before the subject he likes best, a (2) before the subject he likes next best, crosses (x) before the two subjects he likes least. Graph the results by grades, by buildings. Ask the teachers to advance theories as to the differences.

II. B. The Presentation Testing

Errors	*Remedial Treatment*
1. Attempting to have children in fourth and fifth grades use the written paragraph form before they can write with sufficient ease.	1. Use of *new type* tests.
2. Use of the checking and underlining forms after children are able to write paragraphs with ease.	2. Attempt the essay form occasionally to determine how many children are gaining in mastery of English expression.
3. Use of words the children do not know in the objective test.	3. Compare with standard vocabulary lists.
4. Continued reliance on only one type of question.	4. In teachers' meetings take up a complete study of testing.
5. Some of the "multiple answers" are so obviously wrong that no real understanding is tested.	

II. B. The Presentation Testing (*Continued*)

6. Many weak teachers cannot construct adequate *true-false tests.*	6. Begin with multiple-answer tests; include other forms when these have been mastered.
7. Many of the *new-type* tests are too easy.	7. Write out the questions you would use if giving the old-fashioned examination; then change those same questions into objective forms.
8. Failure to demand the same type of written expression as in the English class.	8. Adopt slogan "Every class an English class." Make out coöperatively a graded list of requirements in English which all papers have to meet.

II. C. Diagnosing Results of the Test

Errors	*Remedial Treatment*
1. Failure to chart results so that comparisons are easy.	1. Provide every teacher with samples. (See pp. 434-437.)
2. Failure to use the information revealed; failure to diagnose results.	2. In group conferences show many charts and discuss reasons for failure. List the usual causes: too many details in the presentation, vocabulary difficulties, lack of interest, poor control, lazy children not wanting to make the effort to write, etc. Attempt to determine which applied in each case of failure.

II. D. Adapting Procedure

Errors	*Remedial Treatment*
1. Failure to revise the part of the presentation which	1. A study of the test scores on the second teaching.

II. D. Adapting Procedure (*Continued*)

caused difficulty; failure to remedy the disciplinary difficulty; continuing to tell the same story over in the same way when it is evident that the child is not getting it.	How many items are still being missed? Why? Review the usual causes of failures. Possibly even the most advanced children are not yet able to write paragraphs; in that case the objective form must be resorted to once more.

II. E. Reteaching

Errors	*Remedial Treatment*
1. Making children feel that reteaching is a penalty instead of an opportunity.	1. Teacher's attitude is, "Wouldn't you like to have another chance at this story, so that you may do better than you did last time?"
2. Reteaching without diagnosis and adapting of procedure.	2. See suggestions above.

III. The Step of Assimilation

A. Managing the Reading

Errors	*Remedial Treatment*
1. Not providing enough reading material; not utilizing all the resources of the community.	1. The supervisor attempts to secure the coöperation of the public library, state traveling library, etc.; School Board and Parent-Teachers Association asked to coöperate in supplying books.
2. Failure to adapt reading material to individual differences.	2. Subject of teachers' meetings, supervisors' demonstrations, demonstrations of superior teachers. Use the graded book lists (Terman

III. The Step of Assimilation (*Continued*)

	& Lima *Children's Reading, Winnetka Graded Book List,* etc.).
3. Failure to carry over the silent-reading technique to reading of history materials.	3. Visitation and conference on ability grouping, etc.
4. Errors in management of mechanical routine.	4. Management of mechanical routine.
(*a*) Constant and restless moving about the room in search of new books.	(*a*) Convenient placing of the books for each ability group. Insistence on accurate answers to study questions.
(*b*) Allowing children to skim over the story without comprehending.	(*b*) Compare test results of teachers who hold children to evidence of adequate comprehension and of teachers who do not.
(*c*) Allowing slow children to "dawdle" over one book.	(*c*) Choosing books for the lower group on the basis of vocabulary difficulties.
(*d*) The teacher's concerning herself only with the child she is questioning on his reading, regardless of what the rest are doing.	(*d*) An observer charts the percentages of group attention for several successive days. (See H. C. Morrison, *The Practice of Teaching in the Secondary School,* pp. 117-118).
5. Carelessly made, or carelessly written guiding questions; failure to write with ink; failure to write on a fairly stiff card; use of the identical paragraph headings of the text as questions.	5. Bring samples to teachers' meetings; teachers themselves compare and criticize the *types* of questions.

III. The Step of Assimilation (*Continued*)

6. Failure to keep and improve upon guiding questions from year to year.	6. Devise a filing system.
7. The teacher's doing the child's thinking for him in answering the study questions.	7. In conference, list for the teacher exercises in helping, which teach the child how to help himself.

B. Use of Illustrative Material

Errors	*Remedial Treatment*
1. Little or no use of illustrative material.	1. The supervisor should see to it that every school is supplied with illustrative material and with equipment.
2. Use of too many pictures at one time.	2. Lists of specific pictures which may be used with specific stories are supplied to the teacher. Arouse the interest of the teachers in making collections of mounted pictures, perhaps by an exhibit. Arouse interschool competition.
3. Showing the pictures without any comment.	3. Ambitious teachers determine experimentally the superiority of one method over the other.
4. Using pictures which add little to the impression desired.	4. Bring samples to teachers' meetings; the teachers themselves judge and criticize.
5. Not using sufficient care as to the historical accuracy of pictures.	5. Find the source if possible.
6. Use of pictures too small for the children to see clearly.	

III. The Step of Assimilation (*Continued*)

C. Drawing and Construction

Errors	*Remedial Treatment*
1. Merely copying pictures presented; lack of constructive imagination.	1. Enlist the coöperation of the art supervisor; or study such books as Sargent and Miller, *How Children Learn to Draw.*
2. Insistence on adult standards of perfection and finish.	2. Place more responsibility on the children; committees plan, execute, and judge.
3. Attempting to represent articles on too small a scale; use of a sand box or sand table of insufficient size.	3. Simplify the plan chosen. Adopt a standard size. Use available floor space instead of a sand table.
4. Not using care as to historical accuracy in size, proportions, shape, decoration, etc.	4. Require children to produce evidence from their reading, or from pictures.
5. Not applying principles of business management in the handling of materials.	5. Intervisitation when necessary. Observation of demonstration teaching and answering the guiding questions for the observation.
6. The teacher not attempting anything in the step of assimilation except reading.	6. In conference, encourage the teacher to attack first the type of activity which will be easiest for her to carry on successfully.

D. Map Work

Errors	*Remedial Treatment*
1. Making too many maps.	1-2. Departmental policy as to minimal essentials.
2. Making too few maps.	
3. Failure of the teacher herself to use maps in connection with her teaching.	3. The supervisor accepts responsibility for supplying the schools with maps. Then, if necessary, she re-

III. The Step of Assimilation (*Continued*)

	quests teachers to indicate in their plans, the name or number of the maps to be used in a given story.
4. Failure of teacher to train children to use maps when telling their stories.	4. During visitation supervisor asks children to show on the map the chief places they mention.
5. Asking children to draw their own base maps instead of using outline maps.	5. The supervisor should see that all teachers are provided with an adequate number of outline maps.
6. Drill on map work before the facts to be known have been taught.	6. Discuss the *time* for drills.
7. Not requiring children to reproduce basic map locations from memory.	7. Include such exercises as part of the tests to be given at the end of each unit.
8. Acquiescence in the situation of working with no supplies.	8. The supervisor's own burden is to convince the Superintendent and the Board of Education of the necessity of adequate equipment.

E. The Use of Dramatizations

Errors	*Remedial Treatment*
1. Attempting too elaborate dramatizations in lines, number of scenes, settings, costumes, etc.	1. Directed observation of informal dramatizations.
2. Requiring children to memorize exact speeches.	2. Show how the informal representations are carried on.
3. Too much dependence on reading dramatizations from dramatic readers.	3. In assembly programs call for one original play each semester.
4. Too much time wasted in preparing coöperative class	4. Teachers should be put in touch with the many excel-

III. The Step of Assimilation (*Continued*)

dramatizations for every story.	lent books of historical dramatizations for children.
5. Failure to make the language in some measure express the spirit of the times.	5. Point out children's books in which the language of the times is reproduced fairly accurately.

F. Conducting Oral-Discussion Exercises

Errors	*Remedial Treatment*
1. Using the class period for a question-and-answer exercise daily.	1. Study the *mastery technique* suggested above.
2. Holding the discussion too early in the story, before the child has thoroughly assimilated the reading—the usual cause of the "pumping a dry well" failure.	2. Postpone discussion until all the reading has been done, until pictures have been studied, and in general plenty of opportunity has been offered to gather impressions.
3. Rejecting a child's answers and calling on another, the first child never learning what his mistake was.	
4. Allowing the children to make inaccurate statements, statements based on opinion or prejudice, etc., or on the contrary "bluffing" when the children ask the teacher a question she cannot answer.	4. Occasionally ask all children to prove their statements.
5. Failure of the teacher ever to add anything to the discussion herself; failure to connect the study with life situations.	
6. Failure to allow children who have read widely to bring in material new to the rest of the class.	

III. The Step of Assimilation (*Continued*)

7. Allowing certain children habitually to monopolize the discussion.	
8. Mispronunciation of proper names herself.	Ask weak teachers to mark pronunciation in their plans the first time a new word occurs.
9. Keeping all the class waiting while one child struggles with an answer he does not know.	

G. Conducting Drill

Errors	*Remedial Treatment*
1. Attempt to drill before the necessary facts have been taught.	1. Particular attention should be directed toward the *teaching* of the historical terms.
2. Failure to observe the general principles of drill. (*a*) Failure to provide for a lengthening interval of recall. (*b*) Lack of variety in drill.	2. The subject of teachers' meetings, and of demonstration lessons on principles. Illustrate different drill methods.
3. Drill on too many nonessential points.	3. Agreement throughout the system as to what the minimal essentials are.
4. Lack of cumulative drill, that is, dropping at the end of a unit all material drilled on in that unit.	4. Keep the flash cards used, and at intervals combine those already used with the new.
5. Failure to provide a procedure by which every child drills on his own difficulties.	5. (See M. G. Kelty, *Teaching American History in the Middle Grades of the Elementary School,* pp. 40-43, 661-663).
6. Failure to emphasize time relationships.	6. Use of a time chart.

III. The Step of Assimilation (*Continued*)

H. Testing

Errors	*Remedial Treatment*
	(See pp. 430-438, Testing)
1. Failure to develop in the child those skills, attitudes, and appreciations to be tested; lack of drill before testing.	1. The testing and teaching programs must be planned in advance for the whole unit.
2. Failure to test minimal essentials; expecting children to remember everything equally well.	2. Agreement as to what are the minimal essentials.
3. Use of only memory questions.	3. Present other types in teachers' meetings.
4. Not enough exercises to test all phases of the work; use of only the *new-type* tests; use of only the old-fashioned examination.	4. In teachers' meetings have teachers practice making tests on map work, persons, dates, terms, comprehension of movements.
5. Failure to diagnose the results of the test, and to provide follow-up work. (*a*) Failure to reteach or to provide further drill on items missed.	5. Show the possibilities: vocabulary too difficult, nonessential details called for, lack of drill, poor control, really a test of English composition, etc.

IV. Step of Organization

Errors	*Remedial Treatment*
1. The teacher's insistence on the children's producing exactly the outline, which she had in mind, with the points worded just as she would have worded them.	1. This true incident was described in a departmental bulletin: A child in the training department of a normal school who had been badgered for a long time by such a student teacher finally said, "Miss L——, I don't see what's the use of our

IV. The Step of Organization (*Continued*)

	ever picking out any points You always write down just what you want anyway."
2. Inability to develop a short outline, without superfluous words; in general, they are too long and detailed.	2. Distribute samples of acceptable work, graded in difficulty and completeness.
3. Continuing to make outlines as a coöperative class exercise after many children are able to work independently.	3. At intervals require all children to attempt to make their own.
4. No use of incentives; no variety in procedure.	4. (Kelty, *op cit.*, pp. 35-36.)
5. Failure to select the main points in the outline first, before filling in subheads.	

V. The Step of Recitation

Errors	*Remedial Treatment*
1. Failure to provide an audience situation.	1. (See Kelty, *op. cit.*, pp. 48-49.)
2. Failure to train pupils to listen to each other courteously and attentively.	
3. Demanding a perfect product too early in the child's development.	
4. Not developing power to retell the entire story.	
5. Interrupting the child's train of thought to make corrections in English.	5. (Read H. C. Morrison, *The Practice of Teaching in the Secondary School*, pp. 436-452.)
6. Failure to allow the rest of the class to state their reactions after one member has finished his oral story.	6. The teacher comments in a friendly way, and invites other comment.
7. Too seldom use of written	7. File one full report of each

V. The Step of Recitation (*Continued*)

recitations of the full story (sixth grade) or of single points in the outline (fourth and fifth grades).	child each semester to show progress.
8. Using the written form too often.	
9. Allowing errors in written recitations to go uncorrected.	9. Correlate with the English work.

Problems in types of errors for investigation by the supervisor. The following problems in types of errors should be investigated by the supervisor:

1. What types of errors are most common among inexperienced teachers?
2. What types of errors are most common among experienced teachers?
3. Which types of remedial work are most effective in correcting each? Does the efficacy of the remedial work depend on the adjustment of certain curative measures to certain errors or does it depend more on the adjustment of treatment to the personality of the teacher?
4. Is demonstration teaching more effective when done by the supervisor or by members of the teaching corps?
5. When should teachers' meetings be held? Should attendance be voluntary or compulsory? How can teacher participation in the discussion be made to furnish a real contribution?
6. Plan a schedule for intervisitaton.
7. Plan teachers' meetings for the year, demonstrations, observations, and reading-circle work, around certain big objectives.
8. Compare types of errors made by primary teachers; compare types of errors made by teachers of the intermediate grades; compare errors made by the primary teachers with errors made by teachers of the intermediate grades.

Standards for the improvement of teachers. Numerous attempts have been made to raise the efficiency of teachers and teaching through the use of score cards of various

kinds. Harold Rugg has devised a very helpful "Self-Improvement Through Self-Rating Scale" for judging teachers in service.[82] W. S. Monroe[83] also gives helpful suggestions as to judging efficiency in teaching on an objective basis.

McMurry's standards, referred to previously,[84] are of use not only in selecting material, but even more in determining the quality of teaching. He suggests as standards: (1) motive, both of teachers and pupils; (2) ability to distinguish relative values; (3) ability to organize facts; and (4) the initiative of pupils. These, however, are difficult to evaluate because not objective.

Anderson, Barr, and Bush[85] give some interesting conclusions based on their studies as to the chief causes of failure among teachers, namely, (1) lack of control over the technique of teaching; (2) lack of ability to maintain discipline and order; (3) lack of mastery of subject matter; (4) lack of intelligence; (5) lack of effort; (6) lack of initiative; (7) lack of adaptability; (8) lack of common sense; (9) lack of physical ability; (10) lack of standards; (11) lack of ability to carry on; (12) lack of singleness of purpose; (13) lack of sympathetic understanding of pupils; (14) lack of social background; (15) lack of knowledge of what pupils can do; (16) lack of personality; (17) lack of moral standards. A knowledge of these chief causes of failure should assist a teacher in weighing her work and perhaps in applying preventive measures.

The following attempt to devise a check list for the teaching of history follows the lines of the experiment described

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[82] A. S. Barr and W. H. Burton, *op. cit.*, pp. 480-481.

[83] W. S. Monroe, "Observable Characteristics of Efficiency in Teaching,' *Elementary School Journal*, Vol. 27, April, 1927, pp. 597-599.

[84] *See* p. 367.

[85] C. J. Anderson, A. S. Barr, and M. Bush, *Visiting the Teacher at Work* (D. Appleton & Co., 1925), pp. 333-334.

by Barr.[86] The items are suggestive only. They should be validated and corrected by use.

ITEMS TO OBSERVE IN THE TEACHING OF HISTORY

I. The Organization of the Room for Work.[87]

II. The Teacher's Preparation.

1. Does the teacher show evidence of a knowledge of subject matter by:
   - A. Helping the child to correct inaccurate statements?
   - B. Contributing material not contained in the texts?
   - C. Correct pronunciation of words?
2. Does the teacher show evidence of a knowledge of educational principles by:
   - A. Applying the principle of apperception to the approach to new work?
   - B. Motivating new work?
   - C. Approaching new work by the method of analysis?
   - D. Dependence on the self-activity of pupils during unit study?
   - E. Provision for the visual appeal?
   - F. Helping develop clear-cut concepts of historical terms?
   - G. Provision for drill?
   - H. Provision for testing?
   - I. Provision for summarizing or organizing?
3. Has the teacher prepared the necessary supplies and equipment, so that they may be ready for use without loss of time?
   - A. Texts
   - B. Supplementary reading books
   - C. Material to illustrate her verbal explanations (Object lessons)

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[86] A. S. Barr, *Elementary School Standards for the Improvement of Teaching* (Edwards Brothers, 1926). *See also* A. S. Barr, "Study Methods in History," *The Historical Outlook*, Vol. 12, Jan., 1921, pp. 27-28; and Florence E. Bamberger, "A Survey of Observable Improvable Factors which Evidence Skill in Teaching," *The Elementary School Journal*, Vol. 28, Nov., 1927, pp. 181-185.

[87] A. S. Barr, *op. cit.*, pp. 10-14.

D. Pictures
E. Maps: wall maps, blackboard outline maps, desk outline maps
F. Flash cards
G. Sand table or construction material

4. General relations between teacher and class
   A. Does the spirit between them seem friendly?
      (*a*) Does the teacher speak courteously to the children?
      (*b*) Do the children speak courteously to the teacher?
      (*c*) Do the children sometimes smile at the teacher?
      (*d*) Does the teacher sometimes smile at the children?
   B. How many cases of discipline were observed? How handled?
5. Teacher's relation to the community [88]
   A. Does she assume community obligations?
   B. Has she a working knowledge of accepted social forms?
   C. Does she have sufficient recreation? Wholesome recreation?
   D. Does she have contacts outside the teaching corps?

III. The Teacher's Part in the Class Exercise in History

A. During the step of preparation
   1. Does the teacher utilize the children's previous experiences in leading up to the new topic?
   2. Does she supply the necessary experiences which they have not had? (Show them the weaving process, let them experiment with a compass, etc.)
   3. Does she keep the discussion from wandering too far afield?
   4. To what extent are the pupils attentive? [89]
   5. How much of the class time is employed in this exercise?

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[88] Anderson, Barr, and Bush, *op. cit.*, pp. 14-24.

[89] H. C. Morrison, *op. cit.*, Ch. viii. Methods of measuring group control.

B. During the step of presentation

Telling the story

1. Does the teacher secure and hold the attention of the group? [90]
2. Is the material which is presented socially valuable?
3. Is the presentation short? (Keep a record of the time consumed.)
4. Does the teacher watch the group to see if her teaching is registering? (Determined by watching her eyes, occasional reënforcements of statements, etc.)
5. Does she enliven her presentation by facial expression, gestures, or voice inflection? Does she seem interested in the story herself?
6. Does she include too many details?
   (*a*) Details of movements, forces, or problems?
   (*b*) Many names of persons or places new to the children?
   (*c*) Dates which they do not already know?
7. Does she use direct quotation or interesting incidents?
8. Does she give an opportunity for children to ask questions after the story is finished, on points that they did not understand?
9. Does she keep the questions to a minimum so as not to interfere with children's understanding of the movement described.

Giving the presentation test

1. Are the test sheets ready for immediate distribution? Or are the questions (if on the board) well and clearly written, and well placed so that children will not be subjected to unnecessary eye strain?
2. Does the teacher see that each member of the class attacks the test immediately?
3. Does she study the reaction of the class to determine with which points they are having difficulty? (Walk among them? Watch where they hesitate?)
4. Does she correct the papers and hand them back at the beginning of the very *next* history period?

Diagnosing the difficulties and adapting the procedure

1. Does the teacher chart the results of the test?

[90] *Ibid.*, Ch. viii.

2. Does the chart reveal where reteaching is necessary?
3. Does the teacher change the vocabulary of her story? Does she eliminate details? Does she lay more stress on important points? (To be determined by comparing the original presentation, with the presentation given to the reteaching group.)

Reteaching and retesting

1. Does the teacher divide the class into two groups, those who have grasped the idea, and those who have not?
2. Do those who have grasped the idea go on with the reading by themselves?
3. Does the teacher gather the reteaching members into a compact group?
4. Does she talk over the causes of failure?
5. Are any questions raised? Answered?
6. Is any motivation necessary for the hearing of the presentation the second time? Is any supplied?
7. How many times is reteaching done as a class exercise? (Probably should not be more than two.)
8. When does the teacher reteach those who need to hear the story more than twice?
9. Is any record kept of the number of presentations needed by each child?

C. During the step of assimilation

Reading

1. Is the class sectioned on the basis of reading ability? Of previous knowledge of history? [91]
2. Are different reading materials supplied to the different groups? Are sufficient reading materials supplied?
3. Are adequate study guides supplied?
4. Does each group have some different *kinds* of activities demanded?
5. Does the teacher exercise watchful supervision over the children's study habits? Does she diagnose difficulties?
6. Does she use some device for testing the children's understanding of the books read?

[91] A. S. Barr, *op. cit.*, pp. 14-15. Provision for individual differences.

7. Does she manage the mechanics of distributing books, questioning individual children on their reading, etc., with a minimum of confusion and waste of time?
8. How much time is devoted to the reading for any one story or subunit?

Picture study

1. Does the teacher utilize the pictures in the books?
2. Does she supply a few pictures in addition, for each story?
3. Do the pictures make a significant contribution to the understanding of the story?
4. Does the teacher use too many pictures?
5. Does she merely show the pictures without comment, or without eliciting any reaction from the children?
6. Does she display the pictures later in some such way that the children may examine them in detail (for example, on the bulletin board)?

Teaching the new terms

1. Does the teacher make an attempt to find out which terms each child does not know? Does she use the pretest idea?
2. Does she have an organized plan for teaching those who do not know the terms?
3. Does she test after teaching to ascertain which children have really learned the terms?

Map work

1. Does the teacher use maps herself?
2. Does she *supply* outline maps to the children, rather than requiring them to draw outlines?
3. Do the maps supplied to small children show the water bodies in color, or in some other way clearly show the difference between land bodies and water?
4. Is the sand table used to help out in map work for small children?
5. Does the teacher require the making of too many maps? (Consult list of minimum essentials.)
6. Does she give definite directions for procedure?

Oral discussion [92]

1. Does the teacher delay oral discussion until all the reading, picture study, etc., have been done, so that she is sure the children have material to talk about?
2. Is the oral discussion utilized for voluntary contributions by the class?
3. Does the discussion help to organize children's knowledge?
4. Does the teacher help the class to discover which facts are important and which facts are not so important?
5. How much time is devoted to this exercise?

Supplementary projects [93]

1. Are the projects sometimes group work and sometimes individual?
2. Do the projects call forth the exercise of different types of ability (sometimes dramatization, sometimes construction, sometimes trips or observation, sometimes original verses, etc.)?
3. Does the teacher spend so much time on projects that she fails to present a sufficient number of units?
4. Do the projects clarify concepts, or add an element of reality? (Judged by the finished product, and by the children's method of attack.)
5. Does the group plan the projects for a definite purpose?
6. Are the projects definitely related to the subject?

Drill [94]

1. Does the teacher drill only on minimal essential facts?
2. Does she observe the principles of drill?
3. Does she so plan the drill as to keep children working on their own difficulties?
4. Does she make the drills cumulative (that is, adding new material to old and drilling at intervals on material previously mastered), or does she drop one story completely when she goes on to the next?
5. How much time is consumed by the drill?

[92] *Ibid.*, pp. 19-20.
[93] *Ibid.*, pp. 15-17.
[94] *Ibid.*, p. 21.

Testing

1. Does the teacher use a sufficient number of tests to cover all phases of the subject (time, persons, places, dates, vocabulary, comprehension of cause and effect)?
2. Has she *taught* the material which is included in the test?
3. Does she chart the result of the test?
4. Does she reteach the material that the test shows has not been mastered by certain children?
5. Is there any correspondence between the tests and the teacher's aims or objectives?

D. During the step of organization

1. Before advancing to this step, has the teacher ascertained that the group has mastered the unit?
2. Is an increasing proportion of the children able to outline their stories without help from the teacher?
3. Are the outlines kept short? Are only the most important facts included?
4. Are superfluous words eliminated?
5. In coöperative outlines made by teacher and class, does the teacher accept some of the suggestions of the class, or does she insist on exactly her own wording and arrangement?
6. How much time is devoted to the organizing of each story?

E. During the step of recitation

1. Does the teacher train the class to listen to their classmates courteously?
2. Does she motivate the telling of the story so far as possible?
3. Does she provide for questions and comment by the class after each story is finished? Does she enter in as a member of the class?
4. Does she interrupt a child to correct his English, or does she help him correct his own mistakes after he has ended the story?
5. Does she use the written recitation at times?
6. How much time is devoted to the step of recitation?

IV. The Children's Part in the Class Exercise in History

A. During the step of preparation

1. Do the children enter freely and spontaneously into the discussion of their experiences?
2. Does the child who has had greater advantages than the others monopolize the conversation?
3. Does the reaction of the children indicate that the unit is correctly placed in the curriculum (that is, within their interests and capacities)?

B. During the presentation step

Telling the story

1. Do the children listen with concentrated attention?
2. Measure the group attention.[95]
3. Do they seem to enjoy the story? (Judge by expression.)
4. Do they refrain from playing with articles on their desks, pencils, test papers, etc.?
5. After the story do they ask legitimate questions and make short comments, or do they wander far afield in rambling discussions, thus marring the clear concept left by the story?

Presentation test

1. Do the children attack the test with vigor?
2. Do they know the words of the test questions?
3. Is the sixth grade occasionally called on to write the test in the form of a composition rather than using checking, underlining, etc.?
4. Do they study their test papers carefully when these are returned, to see just what their mistakes were?

Reteaching

1. Does the attention during the reteaching measure up to the first hearing?
2. Do the children *want* to improve their record? (Judge by manner or attitude.)
3. Does the reteaching group sit at one side of the room, those who do not need reteaching but are

[95] Morrison, *loc. cit.*

advancing with the reading at the other side of the room?

4. Do the children express satisfaction when their test record is perfect?
5. Which children need to hear the story more than twice? (Should they be left in the room with the others, or are they distinctly remedial cases to be handled separately from the group?)

C. During the assimilation step

Reading

1. Does the class attack the readings vigorously and without waste of time?
2. Does each child know exactly how to proceed?
3. Do the children in the most advanced group have materials enough to keep them busy? Of a type to interest them?
4. Does the individual answering of questions on the individual reading proceed fast enough to indicate mastery on the part of the children before coming up for questioning?
5. Do the children have a businesslike attitude in changing books, recording their readings, etc.? (that is, move quickly, make little noise, choose with decision and return to their seats to read again).
6. Do the average and lower groups seem able to read their references without great word difficulty?
7. Do they dawdle over their books?
8. Do they seem to understand the purpose of the reading record?
9. Do they make provision whereby they may begin reading next day at the same point which they had reached at the end of the period?

Picture study

1. Do the children contribute to the discussion?
2. Do they make an effort to see the picture?
3. Do they pass pictures from one to another without impatience? With due regard for each other's rights?
4. Do they examine pictures posted on the bulletin

board during free periods, or before school begins?
5. Do they bring pictures from home?

Learning new terms
1. Do the children understand the teacher's test devices?
2. Do they ever turn to the dictionary for help?
3. Do they use the new terms in the oral discussion, and in the step of recitation?
4. Do they make use of the flash-cards?

Map work
1. Does each child work independently?
2. Do they follow the model carefully?
3. Do they make an effort to present neat work?
4. Do they spend more time on perfection of detail than the exercise warrants?
5. Are they able to reproduce the basic location facts from memory?

Oral discussion
1. Do the children show by their response to the questioning that they *understand* the preceding readings?
2. Are they eager to contribute?
3. Do the brighter children monopolize the discussion?
4. Do children bring in matters of interest from their readings outside the required texts?
5. Do the children challenge certain statements and ask for proof?

Supplementary projects
1. Are all children working together, or is the work of each unrelated to that of others?
2. Do the children work sometimes as a group, sometimes individually?
3. Do the supplementary projects serve as socializing, integrating factors?
4. Do they themselves choose and plan the projects?
5. Do they judge the results?
6. Do they manifest pleasure in their achievements?
7. Do the children turn to the books, pictures, etc., previously studied in the effort to clarify their ideas?

Drill

1. Does each child compete with his own previous record?
2. Does each child drill on his own difficulties?
3. Measure group concentration.[96]

Testing

1. Does each child depend entirely on himself?
2. Do the children understand the test devices?
3. Do they attack the tests vigorously?
4. Do the children chart the results of their own tests?
5. Do the children voluntarily verify their answers?

D. During the step of organization

1. Does each child take part, or do some allow others to carry the responsibility?
2. Do they volunteer suggestions freely?
3. Do they show progress in the elimination of superfluous words, or of unimportant details?
4. What per cent of the class is able to make its outlines independently?
5. Are the children able to judge the relative importance of facts?

E. During the step of recitation[97]

1. Does each child who recites show the ability to follow a "coherent account of successive events"? Is he able to follow the outline?
2. Does the rest of the class listen courteously and attentively while one is speaking?
3. Does the class question or comment after the story is finished? Is the tone of their criticism constructive and helpful?
4. Do the children use good English?

Measurement of the results of teaching. *Standardized tests.* Elementary-school history has been affected as little as any elementary-school subject by the whole testing movement, perhaps because of its indeterminate content. While

[96] Morrison, *loc. cit.*

[97] Barr, *op. cit.*, p. 26.

numbers of tests have been constructed and standardized for other levels, there are few indeed that can be used in the first six grades.

Doherty, MacLatchy, and Buckingham [98] and O'Dell [99] give only the following standard history tests available for the elementary grades (Grades I-VI):

Van Wagenen American History Scales, Revised Edition, Scales S_1, R_1, C_1, F_1, K_1, Grades V and VI (Bureau of Publications, Teachers College). Forms S and R are duplicate forms and deal with the whole period of American history. Form C deals with the period before the Revolutionary War, Form F, with the period from the Revolutionary War to the Civil War. Other duplicate forms will be issued as needed.

Boston Research Tests in United States History, devised by O. C. Pennell (Grades VI, VII, and VIII). These might be used by the fifth grade also.

Tryon [100] mentions a few other early experiments, which, however, are not recommended for use at the present time. He adds as available for use in the elementary schools:

Pressey-Richards Test for the Understanding of American History (Public School Publishing Co., 1922), "can be used in Grades VI-XII inclusive." Character judgment, historical vocabulary, sequence of events, and cause and effect relationships.

Plymouth Educational Tests in United States History (Plymouth Press, Chicago, 1922). Three series for Grades VI, VII, and VIII.

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98 Doherty, MacLatchy, and Buckingham, "Bibliography of Education and Psychological Tests and Measurements," Bureau of Education Bulletin No. 55, Department of the Interior, 1923.

99 C. W. O'Dell, "Educational Tests for Use in Elementary Schools, Second Revision," Educational Research Circular No. 49, July, 1927, Bureau of Educational Research, University of Illinois.

100 R. M. Tryon, "Standard and New-Type Tests in the Social Studies," *The Historical Outlook,* Vol. 18, April, 1927, pp. 172-178.

William C. Bagley, in Volume VIII of *The Classroom Teacher* (pages 693-694) gives a list including a few that are more specifically intended for upper-grade work.

It should also be kept in mind that the Stanford Achievement Tests devote one exercise to *history and literature.* For comparative purposes in history, however, they are ineffective since the score is a composite one.

Partly standardized and informal tests. There are many tests which have never been fully standardized but are known as *partly standardized, special,* or *informal* tests. They consist of such as:

Gold, Mary, "Testing Vocabulary in History," *The Historical Outlook,* Vol. 17 (1926), p. 285. Useful for testing vocabulary.

Kelty, M. G., *Teaching American History in the Middle Grades of the Elementary School* (Ginn & Co., 1928). Tests on places, time, persons, terms, and comprehension of the movement, given for each of twelve units of work.

Research Monograph No. 3, "New-Type Tests." Public Schools, Denver, Colorado, 1926. Good advice about constructing tests, and clear directions for using them.

Stormzand, Martin, *American History Teaching and Testing* (Macmillan Co., 1925). Usable in the intermediate grades only as suggestions or models.

Improving the written examination. An extensive and rapidly growing literature has appeared within the last few years on the improvement of the written examination. Our field is very little concerned with this topic, since a formal written exercise has been seldom called for as a test, at least until the sixth grade. We shall therefore only mention in passing a few studies which have dealt with the social studies specifically:

O'Dell, C. W., *Scales for Rating Pupils' Answers to Nine Types of Thought Questions in American History* (Bureau of Educational Research, University of Illinois, April, 1927). An

attempt to train the judgment of the graders by the use of a scale.

OSBURN, W. J., *Are We Making Good at Teaching History?* (Public School Publishing Co., 1926). A study of examination questions.

RUCH, G. M., and others, *Objective Examination Methods in the Social Studies* (Scott, Foresman & Co., 1926). An investigation of the "alleged defects of traditional examination practices in the social studies, and a critical study of the claims to superiority of various newly proposed objective techniques."

Conclusions:

(1) Standardized tests are of great value both at the beginning, and at the end of the school year to measure the progress made, for administrative and for supervisory purposes.

(2) A very limited number of standard tests is available at the end of work on certain units.

(3) Written examinations will continue to be used, but not extensively in the intermediate grades.

(4) Few of the partly standardized or informal tests are generally usable except as models.

(5) Therefore the teacher will have to rely, in the main, on her own informal tests at the end of each of her units of work. The references given above will supply valuable models. For lack of space we shall make no attempt to discuss the advantages of the various forms, such as multiple answers, completion, matching, etc. The references furnish abundant material.

Forms for keeping the records of work done. In addition to tests, there are numbers of records of various kinds which enable teachers to measure the results of teaching, and to study the performance of the individual pupil.

The form that is used first in the technique advocated (pp. 396-402) is the following, showing what items in a presentation test were well given, and which were not:

RECORD FORMS TO ASSIST IN THE STUDY OF THE INDIVIDUAL CHILD

(The first two based on models furnished by H. C. Morrison)

CLASS RECORD OF PRESENTATION TEST FOR STORY OF NORTHMEN [101]

Names	Number of Items in Test				Individual Score	Possible Score
	1	2	3	4		
Abrams, John	√	√	√	√	4	4
Bacon, Ada	√	×	×	√	2	4
Coe, Florence	√	√	×	√	3	4
Dahl, John	√	√	×	√	3	4
√ = item correctly answered. × = item incorrectly answered or omitted.						
Total Number Times Each Item Is Missed	0	1	3	0	Total Items Missed 4	0

RECORD OF NUMBER OF RETEACHINGS REQUIRED ON THE PRESENTATION OF UNIT I

Names	Presentation of Whole Unit	Presentation of Crusades	Presentation of Trade Routes	Presentation of Prince Henry	Presentation of Northmen	Presentation of Great Inventions	Presentation of Columbus's Great Idea
Abrams, John ...	1	1	1	1	1	1	1
Bacon, Ada	2	2	1	1	2	1	1
Coe, Florence	2	2	2	2	1	1	1
Dahl, John.....	3	3	2	2	2	2	2

Figure 1 means that the child had his presentation test entirely correct at the first telling; figure 2, that he had to be told twice; figure 3, that he had to hear the story three times, and so on.

[101] The first three forms are taken from Kelty, *op. cit.*, pp. 13, 22, 26.

RECORD OF BOOKS READ—SECTION I

Southworth	Tappan	Woodburn & Moran	Bourne & Benton	Harding, *Story of Europe*	Harding, *Our Old World Background*
Amy, 1	Jean, 1	Robert, 1	Dorothy, 1	Clarence, 2	Robert, 2
Jean, 3	Amy, 2	Dorothy, 2	Jean, 2		
Dorothy, 3	Clarence, 1	Muriel, 1	Amy, 3		

(1) refers to the first book read, (2) to the second, etc.

The reading record may also be kept as follows:[102]

READING CHART—RELIGION OF THE GREEKS

Name	Harding	Niver	Woodburn & Moran	Gordy	Lawler	Tappan	Hall	Haaren & Poland	Elementary Readers	Other References	Totals
Jack A. ...	6		5	3		8					22
Harriet	6	9									15
Leroy				3							3
Robert B. ..		9				8					17
Clara	6										6
Betty		9	5			8					22
Nellie		9		3	3	8	3				26
Samuel				3							3
Martha		9	5	3		8	3				28
Arthur D...		9		3							12
Gilbert		9	5	3		8	3				28

The figures refer to pages read.

For the oral discussion of the story after the reading has been finished and before the tests are given, the fol-

[102] These records were kept by Miss Charlotte Alexander, sixth-grade critic at Bloomsburg, Pennsylvania, under the supervision of Miss Nelle E. Moore.

lowing guide may be used by the supervisor or by the teacher herself:

ORAL DISCUSSION AFTER READING

Names	The Persian Wars	Greek Colonies	Athens and the Athenians	Greeks as Writers, Artists, Builders	How Macedonians became masters of the World
Mark	√ √ √	√ √	√ √	√ √ √	√ √
Edward ..	√ √ √ √ √	√ √ √	√ √ √ √ √	√ √ √ √	√ √ √ √ √
Herbert ..	√ √ ×	√ √ √	√ √ √ √ √	√ √ ×	√ √ √
Glenn	√ √ √ √	√ √ √ √	√ √ √ √	√ √ √ √ √	√ √ √ √
Harriet ..	√ √	√	√ √ √	× √ √	√ √
Betty	√ √ √	absent	absent		√
Janet	× √ × √	√ ×	× × × √	√ ×	√ √
Gilbert ...	√ × √ √ √	√ √ √	√ √ √	√ √ √	√ √ √
Arthur ...	×	×	√		√ √ √
Dorothy ..	√ √ √	×	absent	√ ×	×
Gladys ...	× ×	absent	√ √	√ √	√ × √ √

√ volunteered; × did not volunteer but recited when called on; blanks did not recite.

By comparing the results on succeeding stories, the teacher may observe that she is habitually failing to call on certain children who do not volunteer, that certain children can tell the story but are timid, that certain others are volunteering and monopolizing the recitation.

On the opposite page is the form in which the same teacher summarized the results of her class work for a term.

All these devices and many others are used by teachers in helping to evaluate the work of pupils, and by supervisors in attempting to evaluate and to improve instruction.

SUMMARY OF RESULTS

Names	No. of Overviews for Story of Hebrews	No. of Pages Read	Volunteered in Discussion	Final Test	No. of Overviews for Story of Greeks	Pages Read on Religion of Greeks	Volunteered in Discussion	Pages Read on Geography of Greece	Volunteered in Discussion	Test on Geography of Greece	Pages Read on Sparta	Pages Read on Spartan Life	Volunteered in Discussion	Test on Sparta	Oct. 25 to Dec. 6
Mark ..	2	25	1	20	2	26	1	5	0	22	23	23	2	19	
Edward	1	18	5	17	2	12	7	9	2	25	22	..	1	17	
Herbert	2	85	1	21	2	9	3	4	2	17	a	a	a	a	
Glenn .	1	104	6	24	1	29	8	15	2	18	18	20	2	17	

Problems in measurement for investigation by the supervisor. The following problems need attention from the supervisor and teacher:

1. Find out how your school system compares with the norms established by the standardized tests.
2. Should the same test be given in all schools in the system, on the completion of a unit?
3. With the assistance of the teachers, make illustrative tests, using each of the test forms: multiple-answer, completion, true-false, indicating sequence, labeling, matching, etc. Train teachers in the use of each.
4. Construct a record form to show pupil's progress in the step of organization; the step of recitation.
5. At teachers' meetings exchange ideas on how to provide remedial work for the difficulties shown by the tests.
6. In conferences, show teachers how to diagnose the test results.
7. Construct and standardize progress tests for your own system.

8. Prepare a bibliography on history testing.

Equipment for the teaching of history. For the equipment necessary in the teaching of history in the elementary school there is no scientific guide whatsoever, not even the types of committee reports available for certain secondary fields. Whatever may be set up as a tentative standard for equipment, depends to an uncomfortable degree, indeed, on opinion.

Books. First in the list of necessary equipment surely will appear the item *books.*[103] Should a basic text be followed? There is a wide diversity of opinion on this point. Barr and Burton[104] state, "The course of study, unless it is given in great detail, must be closely correlated with available textbook materials if it is to be most effective. Some teachers lose themselves by deserting the textbook; others fail to teach effectively by too rigorous adherence to one." Let us grant that uniformity is to be secured, and a common background assured (so far as possible) both by a detailed course of study, and by following, at least roughly, the main lines of organization of a textbook.

Should more than one text be used? Many school systems supply each child with at least two, so that he may from the first, form the habit of comparing and contrasting different points of view. *Text* in this sense is held to refer to a book that attempts in one volume, or a short series of volumes, to cover the main topics to be stressed in the

[103] *See* the *Classified Catalogue of Textbooks in the Social Studies for Elementary and Secondary Schools,* compiled by Amabel Redman (McKinley Publishing Co., 1927), pp. 1-13; C. C. Certain, "Report of the Joint Committee on Elementary School Library Standards," *Fourth Yearbook* of the Department of Elementary School Principals of the National Education Association (1925), pp. 326-359. *See also* such suggestive lists of equipment as the *Cleveland List* reported in the *Fourth Yearbook* of the Department of Superintendence of the National Education Association (1926), pp. 354-356.

[104] Barr and Burton, *op. cit.*, p. 256.

course. The vocabulary [105] should be checked, possibly by comparison with Thorndike's list, or some other standard.[106]

Many score cards for judging the value of texts have been worked out; none, however, apply primarily to history texts for intermediate grades. Probably that which is most valuable for our purposes is Pell's Scale for Measuring High-School Textbooks in History.[107]

In addition to texts, children should be supplied liberally with reference books. These might be divided into two classifications; *reference books* and *storybooks.* The *reference* list might consist of works primarily informational, but written in a style attractive to children, such as travels, biography, letters, etc.; while the *storybook* list might consist of works of fiction from the period being considered, for example, the Otis series, such as *Ruth of Boston. Reference books* should be duplicated; Tryon [108] suggests the ratio of one book to five children. The *storybooks* need not be duplicated, and should probably be kept in the school library for recreational reading. All others [109] referred to should be kept in the classroom library.

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[105] J. L. Ward and P. R. Stevenson, "The Vocabulary of a History Text," *The American School Board Journal,* Vol. 71, July, 1925, p. 65.

[106] E. L. Thorndike, *The Teacher's Word Book* (Bureau of Publications, Teachers College, Columbia University).

[107] Barr and Burton, *op. cit.*, pp. 261-264.

[108] R. M. Tryon, *Teaching of History in Junior and Senior High Schools* (Ginn & Co., 1921), pp. 176-198. Excellent discussion of the entire library problem.

[109] Suggestive book lists are found in the *Report of the Committee of Eight* to the American Historical Association, 1908, pp. 1-47; *The Sixteenth Yearbook* of the National Society for the Study of Education (1917), Part I, pp. 33-59; *The American Library Association Graded List of Books for Children;* F. T. Baker, "A Bibliography of Children's Reading," *Teachers College Record,* Vol. 9, Jan.-March, 1908, pp. 9-14; Washburne and Vogel, *Winnetka Graded Book List* (American Library Association, 1926); Terman and

One historical atlas should be provided for each classroom above the third. Such works as the following are very useful:

BREASTED and HUTH, *Ancient History Atlas* (Denoyer Geppert Co.).

———, and HARDING, *Ancient and European History Atlas* (Denoyer Geppert Co.).

FOX, D. R., *Harper's Atlas of American History* (Harper & Bros.).

HART and BOLTON, *American History Atlas* (Denoyer Geppert Co.).

MUIR and PHILIP, *Putnam's Historical Atlas* (G. P. Putnam's Sons).

SHEPHERD, William, *Historical Atlas* (Henry Holt & Co.).

Maps.[110] The specific map equipment is, of course, determined by the grade placement of material. A score sheet for judging maps and charts may be found in the *Fourth Yearbook* of the Department of Superintendence.[111]

For American history, Tryon suggests a good series of wall maps supplied from such standard [112] collections as:

Foster Historical Series of the U. S. (Rand, McNally & Co.).

The New Hart and *Hart-Bolton American History Maps* (Denoyer Geppert Co.).

Sanford and *Sanford-Gordy American History Maps* (A. J. Nystrom Co.).

United States History Maps (McConnell School Map Co.).

There should also be one slated globe, and blackboard outline maps of the eastern hemisphere, the world, North

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Lima, *Children's Reading* (D. Appleton & Co., 1925); *The Historical Outlook*, Vol. 17, Nov., 1926, pp. 336-337; and M. G. Kelty, *op. cit.*, pp. 30-32 and Appendix A.

[110] *See* the bibliography on maps, charts, graphs, etc., in Tyler Kepner, "Training the Teacher in Service," *The Historical Outlook*, Vol. 18, Oct., 1927, pp. 276-277.

[111] *Fourth Yearbook* of the Department of Superintendence of the National Education Association (1926), pp. 356-357.

[112] R. M. Tryon, "Historical Material of a Geographic Nature," *The Historical Outlook*, Vol. 18, March, 1927, pp. 124-132.

America, the eastern part of the United States, and the United States.

For world history, Tryon suggests a good series of wall maps supplied from such standard collections as:

The *Breasted-Huth Ancient History Maps* (Denoyer Geppert Co.).
Webster-Knowlton-Hazen Ancient History Maps (A. J. Nystrom Co.).
W. and A. K. Johnston's Ancient History Maps (A. J. Nystrom Co.).
Ancient and Classical History Maps (McConnell School Map Co.).
Johnston's Mediæval and Modern European History Maps (A. J. Nystrom Co.).
Webster-Knowlton-Hazen Mediæval and Modern History Maps (A. J. Nystrom Co.).
Harding European History Maps (Denoyer Geppert Co.).
Mediæval and Modern History Maps (McConnell School Map Co.).

Each of these has a somewhat different arrangement of the same types of maps for Early European history, Modern European history, and World history. Blackboard outline maps of the ancient countries, Eurasia and Africa, the Roman world, Europe, and the world, should be supplied.

It is not necessary that a full set should be purchased for the intermediate grades, but the supervisor and teachers of the different grades concerned should make out the minimum list to be secured.

Desk outline maps should be provided in sufficient numbers to allow every child at least two copies for every map he is called on by the course of study to make, one for practice use and one for testing.

Illustrative material.[113] For illustrative material in

[113] W. M. Gregory, "Visual Aids in Education," *Fourth Yearbook* of the Department of Elementary School Principals of the National

American history there is a wide range of possibilities. (See Mary A. Abbott, *Motion Pictures for Different School Grades,* published by Teachers College, Columbia University.) One of the most ambitious projects is the Chronicles of American Motion Pictures, sponsored by the Yale University Press. Other films are supplied by the Society for Visual Education, many of whose subjects are usable for American history, others by the General Vision Company and by the George Kleine Picture Films. The Ford Educational Library of the Ford Motion Picture Laboratories has a number of historical subjects.

Slides are supplied by the Keystone View Company which has a special series for American history.

Probably the best picture collections are:

The Pageant of America Series, edited by Gabriel (Yale University Press).

McKinley's *Illustrated Topics for American History* (McKinley Publishing Co.).

Arnold Historical Pictures (Denoyer Geppert Co.).

The latter are well adapted to small children.

For world history the following are useful:

Lehmann Colored History Pictures (Denoyer Geppert Co. and A. J. Nystrom Co.).

Cybulski Colored History Pictures (A. J. Nystrom Co.).

Gordon Grant, The Story of the Ship (McLoughlin Publishing Co.).

Gurlitt History Pictures (A. J. Nystrom Co.).

Longman's Historical Illustrations and *Longman's Historical Wall Pictures* (Longmans, Green & Co.).

McKinley Illustrated Topics for Ancient, Mediæval, and Modern History (McKinley Publishing Co.).

Certain periodicals such as *The Mentor, The National Geographic Magazine,* and *Travel* are very helpful.

Education Association (1925), pp. 278-282; and C. E. Howell, "First Experiences with Portable Motion Picture Projectors," *Elementary School Journal,* Vol. 27, Oct., 1926, pp. 101-112.

Packages of illustrated cards may be secured on such topics as a *Pictorial History of the United States* (Interstate News Service, New York).

As to standards of distribution, one good picture to each building to illustrate every subunit is suggested. These should be filed and cataloged in a central location.

Miscellaneous equipment. The following miscellaneous [114] equipment is recommended: (1) a rotary mimeograph; (2) typewriter; (3) block-printing outfit with small rubber type for making drill cards; (4) sand table for every room up to the fifth, good size, 8′ x 3½′; (5) dictionary; (6) atlas; (7) children's encyclopædia; (8) World Almanac; (9) ample cupboard space; (10) table for supplementary books; (11) a flag; (12) filing cabinet for pictures; (13) bulletin board; (14) portable lantern; (15) and if possible, at least the beginnings of an historical museum.

For the work of the first three grades, a good equipment list may be found in Parker and Temple.[115]

A long and careful list of equipment for all the grades, including high school, may be found in the following:

Coulomb, C. A., "Aids to the Visualization of History," *The History Teachers' Magazine,* Vol. I, Feb., 1910, pp. 119-124.

Glick, Annette, "Making History Real," *The Historical Outlook,* Vol. 17, Dec., 1926, pp. 382-385; Vol. 18, Jan., Feb., 1927, pp. 29-37, 64-82. Lists of artifacts and models, wall charts, posters, stereographs, slides and films, prints and photographs, photostat negatives, autograph facsimiles, picture atlases, costume books, miniature and postcard editions, and notebook illustrations. In Vol. 20, March, 1929, pp. 124-136, Miss Glick discusses the use of such materials.

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[114] Olive Bucks and Grace McNealy, *My Work Book in Early American History* (Harter School Supply Co., Cleveland). Suggestions to the teacher as to making study-guide sheets.

[115] Parker and Temple, *Unified Kindergarten and First-Grade Teaching* (Ginn & Co., 1925), pp. 90-92. *See also* International Kindergarten Union, *Equipment and Supplies: Nursery—Kindergarten—Primary,* Washington, D. C., 1928.

One explanation of the paucity of illustrative materials and equipment is to be found in the fact that teachers and supervisors themselves have not realized the need; and therefore have not made the authorities feel it. Science teachers have brought the public to understand that they must have laboratory materials for their work; supervisors of the social studies now find themselves confronted with a similar task.

A helpful influence in securing larger appropriations for equipment is to utilize fully and effectively that which has already been provided. Sometimes a zealous supervisor stocks the supply rooms with lanterns, slides, pictures, maps, and books, and then makes no effort to train teachers in their use. Sometimes moving-picture machines and booths are installed at considerable expense and then left idle because of the trouble involved in securing films, or because of defects in the apparatus which a careful preliminary examination would have revealed. Not all the blame for insufficient equipment is to be placed upon school boards.

An accurate record of children's reading; and of the number of times each piece of equipment is used, will ordinarily help to convince even the most "business-like" of school boards of the value of materials to work with.

Problems in equipment. The following problems in equipment should be investigated by the supervisor:

1. Work out with the teachers a scale for the selection of textbooks in history for the elementary school; for the selection of reference books.
2. Work out a standard distribution of books for your system.
3. Plan a campaign for adding to your equipment in the order of importance.
4. Standardize picture, slide, film, and machine equipment.
5. How can you train your teachers to take advantage of the equipment they have?
6. Plan how to keep records of the use of equipment.

Keeping up with the literature of history teaching in the elementary school. The only periodical devoted exclusively to the teaching of history is the *Historical Outlook,* published by the McKinley Publishing Company, Philadelphia. It is edited in coöperation with a committee of the National Council for the Social Studies, and is published with the endorsement of the American Historical Association. To the history teacher it is invaluable, not only because of the articles themselves, but also for the book reviews, the lists of recent historical publications, the lists of historical articles in current periodicals, and a section on recent happenings in the field of the social studies. Even the advertisements are rich mines of materials. The *Historical Outlook* is without question the best single means of keeping up with the literature of the subject. Very few of its articles, however, bear on the problems of elementary school history.

In addition, leading periodicals such as the *Elementary School Journal,* the *Teachers College Record, School and Society, Education,* etc., publish occasional articles on history teaching. On the teaching of Current Events there is a periodical sheet, *Current Events Guide for Teachers* published by the American Education Press, Columbus, Ohio; and for the intermediate grades a helpful periodical on *Citizenship Through Character Development* published by a School Committee in Boston.

The more strictly scientific studies may be found by examining such lists of recent publications as the following:

Rugg, H. O., "How to Keep in Touch with the Quantitative Literature of Education," *Elementary School Journal,* Vol. 18, Dec., 1917, pp. 301-310.

Supplementary Educational Monographs, University of Chicago Press, University of Chicago.

Teachers College Contributions to Education, Bureau of Publications, Teachers College, Columbia University.

Research Bulletins of the National Education Association, 1201 Sixteenth Street, N. W., Washington, D. C.

National Education Association, *Yearbooks* of the Department of Superintendence.

National Education Association, *Yearbooks* of the Department of Elementary School Principals.

National Society for the Study of Education, *Yearbooks* (Public School Publishing Co., Bloomington, Illinois).

City School Leaflets and Bulletins of the Department of the Interior, Bureau of Education, Washington, D. C.

National Education Association, *Proceedings.*

Bulletins of the National Education Association.

Bulletins of the State Departments of various states. Those of Maryland are especially good on supervision.

Many research bureaus[116] are maintained by colleges and universities, and by some public school systems. Their research bulletins are often on subjects directly applicable to supervision in history. Some such are:

Research Bulletins of the Bureau of Educational Research of the University of Illinois; Ohio State University; University of Wisconsin; and the University of Iowa Studies.

The general problems of supervision and, among them, occasional articles in the history field may be found in such periodicals as:

Educational Administration and Supervision
Journal of Educational Method
Journal of the National Education Association
Journal of Rural Education
Journal of Educational Research
American School Board Journal
Journal of Education
Educational Review
Pedagogical Seminary
Journal of Educational Psychology
Psychological Review
American Educational Digest
Journal of Applied Psychology

[116] W. S. Deffenbaugh, "Research Bureaus in City School Systems," United States Bureau of Education, City School Leaflet No. 5, 1923.

In general, it may be concluded that keeping up with the literature of the subject constitutes one of the main tasks of the supervisor. It is complicated because of the fact that the material is so scattered. Such a National Educational Research Council as Judd recommends [117] would simplify the problem greatly.

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———, "Present-Day Minimal Essentials in United States History as Taught in the Seventh and Eighth Grades," *The Sixteenth Yearbook* of the National Society for the Study of Education, Part I (1917), pp. 143-155. A list of essential names and topics in American history based on an examination of twenty-five texts.

———, and Rugg, H. O., "The Content of American History as Taught in the Seventh and Eighth Grades," Bulletin No. 16, School of Education, University of Illinois, 1916. A study of events, names, and points of view in textbooks.

Bailey, D. C., *A New Approach to American History* (University of Chicago Press, 1927). An illustration of the Morrison "mastery technique" as applied to senior high-school history. Suggestive to the elementary teacher.

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[117] Charles E. Judd, "Supplementary Statement," *The Twenty-sixth Yearbook* of the National Society for the Study of Education (1926), Part II, p. 117.

BARNES, H. E., Editor, *The New History and the Social Studies* (The Century Co., 1925). An explanation of the contribution of each of the other social studies to the "new synthetic history."

BASSETT, B. B., "The Content of the Course of Study in Civics," *The Seventeenth Yearbook* of the National Society for the Study of Education, Part I (1918), pp. 63-80. An investigation to determine the most significant and persistent governmental problems, through a study of political platforms.

———, "The Historical Information Essential for the Intelligent Understanding of Civic Problems," *The Seventeenth Yearbook* of the National Society for the Study of Education, Part I (1918), pp. 81-89. Historical references in books on crucial present-day political problems.

BOBBITT, Franklin, and others, "Curriculum Investigations," Supplementary Educational Monograph, University of Chicago, June, 1926. Objective evidence as to the major fields of human concern, and criteria by which to judge citizenship needs.

———, *How to Make a Curriculum* (Houghton Mifflin Co., 1924), pp. 97-128. Objectives based on social needs. A very helpfull list of general assumptions and guiding principles for history.

CLARK, Marion G., "A Study in Testing Historical Sense in Fourth- and Fifth-Grade Pupils," *The Historical Outlook,* Vol. 14, April, 1923, pp. 147-150. An excellent study to determine whether the biographical is the best organization of history courses in the fourth and fifth grades. Concludes that fourth-grade children can appreciate change and development, therefore that a straightforward story is better suited to these grades than is the biographical arrangement.

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CHAPTER IX

THE SUPERVISION OF ELEMENTARY CIVICS

BY HOWARD C. HILL

Assistant Professor of the Teaching of Social Science, University of Chicago

Basal function of civics supervisor. The fundamental service of the supervisor, in the words of Arnold Tompkins, "is to find the way through the teacher to the pupil." Any supervisor who sees his function in this light has the mental attitude and sympathetic demeanor essential for helping the teacher improve instruction, select and organize material, secure equipment, and measure results. In no phase of supervision are understanding and sympathy more needed than in the guidance of citizenship training; here, to a greater degree than in any other line, the supervisor should *live* that which he endeavors to inculcate in the teachers whose work he oversees.

Aims and objectives. As used in this chapter the teaching of civics means more than the teaching of government. It includes, to be sure, instruction in the elements of political science, but embraces also materials in the fields of sociology and economics. As employed here the term citizenship, too, is not restricted to membership in the state; it includes, as well, membership in society.

From the point of view presented, then, a child is not only a citizen of the state but is also a citizen of the home, the school, the neighborhood, and the community. Instruction in citizenship becomes, therefore, instruction in membership. In other words, to teach boys and girls to be good

citizens is to teach them to be good members of the groups to which they belong.

Good citizenship necessitates, first of all, civic knowledge; one must know *what* is well to do in order to perform a social act. It involves also civic skills; one must understand *how* to act if his knowledge is to prove beneficial to others. Finally, it involves civic attitudes; one must *desire* to do what is for the common welfare if his skill is to be of value to society.

Citizenship training, in short, has for its goals civic knowledge, civic skills, and civic attitudes. As applied to the elementary grades, civic knowledge, interpreted in a broad sense, includes an understanding of the chief features of the work of such public employees and officials as policemen, firemen, postmen, aldermen, the mayor, the governor, judges, and members of law-making bodies, as well as an acquaintance with such governmental activities as are carried on by the department of health, the library board, the department of public works, and the board of education. Civic skills in the first six grades embrace the development of the art of coöperation, the spirit of accommodation, and the power of leadership, such as may be derived from projects, committee work, group dramatizations, home-room management, class organization, school clubs, assembly programs, corridor management, and playground arrangement. The chief civic attitudes to be inculcated in the grades under discussion are kindness, courtesy, consideration for the rights of others, unselfishness, respect for authority, reverence, and helpfulness.

Expressed in other words, the main objectives in the teaching of civics, broadly interpreted, are first, to develop in boys and girls social attitudes and social behavior, and second, to inculcate in them an understanding and an appreciation of their social environment, its character, its needs, and its problems. Such an understanding, when

combined with such attitudes and behavior, will, it is believed, result in an adjustment to and a control of the social environment to the end that the common welfare may be advanced. Put in more concrete terms, the objectives may be outlined as follows:

1. To develop an understanding of the nature of community life, especially in its aspects of association and control.
2. To establish a sense of evidence. This necessitates an appreciation of the nature of the past and the ways in which it is discovered and written. It involves a critical attitude toward what is read and heard. It implies a rejection of snap judgments and unsupported generalizations. This objective can be fully achieved only in the later grades, but the foundation can and should be laid in the elementary school.
3. To cultivate intellectual sympathy or tolerance. This is an inevitable corollary of a sense of evidence. It is inherent in a genuine search for truth, is manifested by a desire to understand controversial questions, and is reflected in the expression of suspended judgments on social, political, and economic problems. Like the inculcation of a sense of evidence, intellectual sympathy can be fully developed only in the later grades, if at all, but a beginning can well be made in the younger classes.
4. To create a liking for the social sciences which, when realized, will be manifested primarily in voluntary reading and study.
5. To inculcate true patriotism, that is, a sincere love for school, community, and country, to be revealed by a consideration for the rights of others and a willingness to sacrifice, if necessary, to promote the welfare of the group.

That the foregoing objectives may be achieved requires first, a well selected, systematically organized course in civics and second, a suitable program of activities.

Types of civic courses. A wide variety of courses in elementary civics has appeared in recent years in various sections of the country. With liberal allowance for modi-

fications, combinations, and differences in detail, such courses may for the sake of convenience be classified under five heads: *first,* courses consisting of a study of occupations of individuals typifying a group; *second,* courses in civic virtues; *third,* courses in civic activities; *fourth,* fusion or unified courses; *fifth,* courses in which civics is correlated with other subjects. Each type of organization will now receive brief consideration.

1. *Individuals representing a group.* In most courses based on a study of typical classes in the social organization, attention is centered upon representative workers who are familiar to the children. For example, J. S. Welch,[1] of the Utah Normal Training School, proposes that the following individuals be discussed in the first four grades:

First grade: carpenter, dressmaker, blacksmith, postman, and milkman.

Second grade: farmer, storekeeper, bricklayer, policeman, and doctor.

Third grade: baker, conductor, motorman, engineer, sailor, and lighthouse keeper.

Fourth grade: principal, teacher, janitor, and pupil.

The method of treatment appears from the following suggestions for discussing "the teacher" in fourth grade:

> Consider: what she is for; how she does her work; the preparation she has made; who benefits by what she does; how she is helped or hindered in her work; whose loss when she is hindered; how hindrance can be avoided; what she has a right to expect; her service to the school group; to the social group.

2. *Civic virtues.* In many schools the civic work in the early grades is directed toward the development in children of the main civic virtues. For example, obedience, cleanliness, orderliness, courtesy, helpfulness, punctuality,

[1] J. S. Welch, "A Social Science Outline," *Elementary School Teacher,* Vol. 6, May, 1906, pp. 441*ff.*

truthfulness, care of property, fair play, safety, thoroughness, honesty, respect, courage, self-control, thrift, perseverance, and kindness to animals are taken up in the order named in the first three and a half grades in the Philadelphia public schools.[2]

Suggestions [3] for the teaching of truthfulness in the second grade are as follows:

Truthfulness

1. In dealings with school authorities—teachers, principal, janitor: in admission of wrongdoing; in work, action, and speech; in making complaints; in reporting school happenings at home.
2. In dealings with other children.
3. To parents.

The influence of the teacher's example must be kept constantly in mind. The confidence of the children must be secured. Promises that are not to be kept must not be made. Do not create a situation which tempts a child to lie.

The teacher should distinguish carefully between untruthfulness and romancing. An effort should be made to check gently the tendency toward romancing.

3. *Courses in activities.* One of the best examples of courses in civic activities is that worked out in the State Normal School at Hyannis, Massachusetts, by Hannah M. Harris.[4]

Looking upon training in citizenship as training in living, Miss Harris considers life situations having a civic

[2] John P. Garber, "Course of Study in Civics, Grades I to VI, for the Public Schools of Philadelphia," Philadelphia, 1917, pp. 20*ff*. "Kindness to animals" is included in each of the grades mentioned. Typical occupations are suggested as additional content for the third grade.

[3] *Ibid.*, p. 15.

[4] Hannah M. Harris, "Lessons in Civics for the Six Elementary Grades of City Schools," United States Bureau of Education Bulletin No. 18, 1920, also Arthur W. Dunn and Hannah M. Harris, *Citizenship in School and Out* (D. C. Heath & Co., 1919).

bearing as falling into five fields, namely, home, work, recreation, social intercourse, and organized community life.[5] She says:

Let us shadow any individual, of any age, and see if he can be found, at any time, living, thinking, acting, in any other than one of these five fields. Let us seize any moment of his life and ask, Where is he? What is he doing?

He is at home. He is dependent on the family life for his infant existence; or he is helping to make the home, to carry on its activities; or he is just enjoying the fruits of those activities and the family relationships; or perhaps he is trying to endure them or to escape from them. At all events, *he is at home.*

Or he is at work. His work may or may not contribute to the support of the home, but we may have found him at work rather than at home when his mind is bent, for the time, not on his part in the family life, but on his job. He is trying to do some bit of the work of the world, either for its own sake, or for the reward its accomplishment will bring him, or because he is driven to it. Small boy or full-grown man, stock broker or engine stoker, *he is at work.*

Or he is at play. Riding his bicycle, driving his car, playing Indians or dolls, on the beach, at the "movies" or the opera, on the football field or the playground, somewhere he is looking, or listening, or putting forth his own effort, all for the pure pleasure of it or for the recreation of his powers of mind or body. *He is at play.*

Or he is in society. Not necessarily is he now at a so-called society function, though he may be at such; but quite as likely he is seated with one other on a bench in the park, or he is in the midst of a crowd of boys on a street corner. He may be "chumming," he may be courting, or he may be "grappling a friend to his soul with hoops of steel," but somewhere and somehow he is seeking and enjoying the companionship of his kind. *He is in the field of social intercourse.*

Or he is in organized association. That is, in school or in church, in boy scout activities or club meeting, in the jury box or at the polls, he is playing his part in the organized effort by which the community secures for itself the larger opportunities that individual effort alone could not compass. *He is in organized community life.*

[5] Dunn and Harris, *op. cit.*, pp. 6*ff.*

If, then, every child, as well as every man and woman, is to be found at each hour of his life living and acting in one or another of these fields of citizenship, it must be the function of the school not only to educate *for* its citizenship, but also to educate *in* citizenship.[6]

In keeping with the view just presented, Miss Harris proposes that the civics work in each of the first six grades consist of a program of activities in the five fields of citizenship as outlined above.

For the third grade, for example, she presents the following as situations having civic significance and worthy of serving as the basis of civics instruction:[7]

1. The walk to and from school.
2. Riding the street cars unaccompanied by adults.
3. Visiting the library, the park, and other public places.
4. Choosing places in which to play, games to play, and implements or materials to play with.
5. Helping to care for surroundings at school, at home, and in neighborhood of each.
6. Taking part in fire drills.
7. Contact with certain persons who represent the authority and the service of organized society.
8. Taking part in patriotic ceremonies.
9. Providing entertainments or gifts for persons who need good cheer.
10. Gardening work in the fall.
11. Accidents and narrow escapes from accidents at home and on the street.
12. Arrival of new pupils at school.
13. Arrival of newcomers in the neighborhood.

Each situation is treated under four steps: (1) children's experiences and observations; (2) teacher's inter-

[6] For another example of an "activity" course see Lena J. Merrill, "Training in Citizenship in the Elementary Grades," *Journal of Educational Method*, Vol. 7, Sept.-Oct., 1927, pp. 31-38. The five headings about which the work is organized are health, safety, courtesy, coöperation, and a miscellaneous group.

[7] Hannah M. Harris, *op. cit.*, p. 38. *See also* Dunn and Harris, *op. cit.*, pp. 66-78.

pretation and enlargement; (3) methods of teaching; and (4) results to be worked. For the third grade the plan, as used for "Visiting the park and the library," is, with some omissions, as follows:[8]

1. *Children's experiences and observations*
   (*a*) Noticing the trees, grass, flowers, etc., in the park without fully realizing their beauty or knowing the care needed to preserve this beauty.
   (*b*) Wishing to do things prohibited by the rules of the park.
   (*c*) Seeing a building filled with many books which appear not accessible and perhaps not even desirable.
2. *Teacher's interpretation and enlargement*
   (*a*) We enjoy the park for many reasons; among them for its beauty.
   (*b*) To make and keep the park beautiful requires much work and care.
   (*c*) The park belongs to us, and we must help to keep it beautiful.
   (*d*) The library is for our use and enjoyment that we may read interesting books there and take them home —more books than we can afford to buy.
   (*e*) If we are to use and enjoy the library we must learn and must follow its rules for being quiet, for taking out books, for returning them, etc.
3. *Methods of teaching*
   (*a*) Visiting the park and library, as a class, or in smaller groups, accompanied by the teacher.
   (*b*) Informal conversational lessons based upon the observations of all the class.
   (*c*) Questioning those children who are already in the habit of visiting the park or the library in order (1) to inform the others and (2) to clarify the ideas of all.
   (*d*) Oral and written lessons in sentence writing.
   (*e*) Dramatization.
4. *Results to be worked for:*
   (*a*) Appreciation of the beauties to be enjoyed in well kept grounds.

[8] *Ibid.*, pp. 43-45.

(*b*) Respect for public property.
(*c*) Respect for the caretakers of public property, appreciation of their work, and desire to coöperate with them.
(*d*) Desire to use the public library and knowledge of how to do so.

4. *Fusion courses.* Fusion courses are based on the theory that life consists of actual problems and situations and that the best way to prepare children to meet such problems and situations, in so far as school work goes, is to disregard subject divisions and assemble materials from all sources possible, putting the materials together in such form as may prove most serviceable in meeting pupil needs. Believers in the fusion idea, therefore, would ignore geography, history, and civics as separate subjects, and, instead, would embody material from all of them in a single unified or composite course.

The work for the fourth grade in the St. Louis schools,[9] for example, has as its major objectives: first, to know St. Louis present and past; second, to understand the dependence of St. Louis upon the other regions of the United States; third, to discover the relationship between St. Louis and distant lands. To achieve the last objective the pupils are, among other things, to plan a world cruise; to compare each place visited with St. Louis as to location, climate, industries, and products; to study the characteristics, manners, and customs of such peoples as the Hawaiians, Japanese, Chinese, Filipinos, Egyptians, Spanish, English, Brazilians, Chileans, and Panamanians; to survey the history of such movements and episodes as the annexation of Hawaii, the opening of Japan by Commodore Perry, the acquisition of the Philippines, the contributions of China to civilization, the discoveries of Vasco da Gama, the con-

[9] "Social Studies for Kindergarten and Grades I-VI," Curriculum Bulletin No. 6, Sept., 1926, Board of Education, St. Louis, Mo.

quest of India by Great Britain, the construction of the Suez Canal, the building of the pyramids, the voyages of Magellan and Drake, the contributions of Spain to civilization, the founding of Plymouth, the conquest of Peru, the discovery of the South Pole, the construction of the Panama Canal, the settlement of Florida, the building of the Statue of Liberty; and to study such industries as the raising of pineapples, the production of tea, the growing of hemp, the catching of fish, the making of jute, the raising of dates, the production of olives, the growing of cacao beans, and the manufacture of sugar.[10] That the course is necessarily highly superficial appears from the preceding list of topics comprising, it will be remembered, only a small part of the work outlined for the fourth grade.

5. *Correlation with other subjects.* The need for utilizing pupil activities and the various school subjects for citizenship and training is recognized in all progressive schools. A few places, in fact, provide no other kind of civic education. In such instances aspects of citizenship are correlated as a rule with reading, geography, and history. For example, the history work of the first and second grades of the Henry Clay School in Norfolk, Virginia, includes stories of historical personages utilized so as to inculcate desirable traits of character. Commenting on this point, the principal of the school says:[11]

> In observance of Robert E. Lee's birthday the idea of helpfulness and kindness was developed. Pictures of General Lee, his home, and his horse were shown the children and the story of his early life told in a simple and interesting manner. His love and devotion to his devoted mother were brought out clearly: how she learned to depend on him from his early childhood; how as a little boy he shouldered the responsibilities of his

[10] *Ibid.*, pp. 160-179.

[11] Ellie M. Marx, *Citizenship Training in Elementary Schools* (Henry Clay Home and School League, Norfolk, Virginia, 1926), pp. 36*ff.*

father's estate, Arlington; and how, instead of playing with other children after school was over, he would hurry home to take his mother out for her daily ride. How this helpful little boy grew up to be a brave soldier and a good, honest man was emphasized. The children, in the reaction to this story, told how they could be helpful to their mothers, and why they should wish to help their mothers. Whom else should they help? The idea of helpfulness and kindness to each other in school, on the playground, and at home was clearly brought out.

6. *Criticism and evaluation.* Each of the five types of organization described above has both merits and defects. Viewed by itself each plan is inadequate; at the same time each contains elements too valuable to ignore.

Courses in occupations or civic virtues are defective unless opportunities are provided for the development of civic habits and civic skills. Courses in activities generally fall short in content of educative value. In fusion courses, training in citizenship tends to become incidental or accidental,[12] while subject matter is often so superficial, disorganized, and repetitious as to be of little or no worth. Similarly, civic instruction when limited to correlating civics with other subjects often becomes lost, or so influences or dominates the subjects with which it is correlated as to interfere with their true educative value considered from the viewpoint of their intrinsic qualities. The civic viewpoint and spirit should permeate school instruction and activities at all times, but the objectives of citizenship training can be fully realized only when civics is given a separate place and a definite time on the school program.

Better than any single plan of organization sketched above is the utilization of the best features of all of them. When so regarded, a course in civics for the first six grades should consist of a study of typical occupations, the main

[12] *See,* for example, the subject matter used in the fourth grade in St. Louis schools. A summary of such material appears on pages 464*f*. Items of a civic nature are almost wholly absent.

civic virtues, and the more common community welfare agencies, the material for each grade centering upon a common theme. In addition to such content, provision should be made for bringing out the civic aspects of the work in reading, language, history, arithmetic, and science, thereby permeating all instruction with a social spirit. Finally, a rich program of projects and activities in classrooms, in clubs and societies, on the playground, in the school assembly, in the government of the school, and in suitable community enterprises should be developed.

The work for the fifth grade, for example, may have for its theme public and personal safety. It may include a study of the chief activities of the fireman, the policeman, the garbage collector, the municipal laboratory worker, the building inspector, and the coast guard. It may embrace an examination of such occupations as that of the dentist, the physician, and the nurse. It may lay stress upon such civic virtues as personal cleanliness, orderliness, obedience to rules, punctuality, and self-control. It may include a survey of the numerous activities and organization of the local departments of health, fire, police, and public works.

If the work is so organized, instruction in the fifth grade should provide projects to develop habits of personal hygiene, such as the washing of hands and face, the brushing of teeth, and the combing of hair. It should utilize devices and enterprises that will show the importance of keeping the school building, the playground, the sidewalks, and the alleys free from rubbish and fire hazards. Through direct instruction, dramatizations, posters, and slogans it should stress the importance of careful compliance with quarantine regulations and the need for observing safety-first principles in such everyday matters as the crossing of streets and the riding of bicycles. It should emphasize the dangers involved in hitching on trucks, in "thumbing" a

ride, and in playing on thoroughfares. It should provide instruction concerning conduct in case of fire in the home and in places of public assembly as well as in school. In addition, it may well include the inculcation of simple, first-aid methods and remedies for common accidents.

Teaching methods and special problems. 1. *Direct instruction.* Training in citizenship in the primary grades must of necessity depend in large part upon direct oral instruction, upon dramatizations, and upon classroom and school activities. In teaching civic virtues and occupations, the teacher will need to rely on her own knowledge and experience and upon materials such as are listed elsewhere in this chapter (pp. 475-476). The use of stories and poems in morning talks is one of the best ways to teach such topics. The following suggestions are given by Miss Ella Lyman Cabot for teaching perseverance in the third grade.[13]

Morning Talks

1. Describe Edison's perseverance in searching for the best materials to use for the filaments of electric lamps.
2. Tell about the perseverance of Charles Darwin or any other scientist in working out his discovery.
3. Describe Columbus's efforts to get ships and supplies for his first voyage to America.
4. Tell about Helen Keller's struggle to learn to speak.

Memory Work

Have the children learn Longfellow's "Excelsior."

Reading

Have the pupils read such selections as F. J. Gould's "William Edwards," in *The Children's Book of Moral Lessons* (Watts and Company, London); Julia M. Dewey's "The Water Lily" in her *Ethics* (Educational Publishing Company), and Fanny E. Coe's "The Tortoise and the Hare" in *The First Book of Stories for the Story Teller* (Houghton Mifflin Company); and James Baldwin's "Bruce and the Spider," in *Fifty Famous Stories Retold* (American Book Company).

[13] Ella Lyman Cabot, *A Course in Citizenship* (Houghton Mifflin Co., 1914), pp. 93-95.

Admirable suggestions for teaching occupations and for giving instruction in simple community-welfare topics appear in the Philadelphia course of study in civics for elementary schools. The following excerpt, intended for the fourth grade, deals with the street cleaner and his work.[14]

An interesting approach to this topic might be made by telling the children the story of the beginning of street cleaning in Philadelphia as it is related by Benjamin Franklin in his *Autobiography.* The children will probably be interested in comparing the unpaved streets of the city in Franklin's time, and the services of the city's one sweeper, with the paved streets and the uniformed street cleaners of to-day. The teacher should guide the conversation which follows so that it will lead to the question as to whether the streets in the neighborhood of the school are clean. The differences of opinion which the answers to this query will bring out will lead to the question, "How can we find out whether our streets are clean or not?" The children will probably suggest, when guided by the teacher, that each one observe carefully the condition of the streets on the way to and from school and be ready to report to the class at the next civics period.

Following the report on the cleanliness of the streets in the neighborhood of the school the teacher might develop the idea that the streets are the hallways of the city. It will be interesting to the children to see that the streets belong to them as well as to the grown folks and that they are in part responsible for their appearance. The teacher should strive to develop in the children a sense of ownership in the streets and a feeling of responsibility for their appearance, and a pride in their cleanliness. They should be led, if possible, to want to do something to aid in keeping their streets clean. As preparation for the taking of an active part in the work for clean streets the teacher might assign to the class the question, "How do our streets become dirty?" and have them observe how waste paper and other rubbish gets into the street and be prepared to report to the class on their findings.

At the beginning of the next civics period the children should be called upon to tell what they have observed, the teacher

[14] John P. Garber, *op. cit.*, pp. 34-36.

noting on the board the important points as they are mentioned. This list will probably include such items as papers blown from rubbish cans, papers thrown away by boys and girls, fruit skins, etc. In the conversation which follows the children should be led to see that most of the dirt which they have seen is the result of some one's carelessness. The first step in a practical program for clean streets might now be taken by having the children want to refrain from throwing papers, fruit skins, etc., into the streets.

The methods of street cleaning will be found to be interesting. Individuals or groups of children might be assigned to find out about different methods of street cleaning and to report their findings to the class. In such work the children making the reports may be made to feel responsible for the lesson, even to the point of trying to answer questions which other children may raise. The collection of pictures of the apparatus used in cleaning the streets, of pictures of dirty streets and clean streets, will help to hold the interest of the children. The writing of short accounts of things they have seen or read, and the illustrating of these accounts with pictures or drawings, will be found of value. Bulletins and posters issued by the Bureau of Highways, magazine articles, newspaper clippings, etc., might be used as exhibits.

The children should be made familiar with the city regulations, especially those concerning the disposal of garbage, ashes, and waste, the throwing of papers, etc., into the streets. They should be led to see the reasons for such laws. The teacher should strive to develop a sympathetic attitude of mind on the part of the children toward these laws. . . .

The children should be led to respect the service which the street cleaners are rendering and to realize the value of and necessity for their work.

2. *Problems or projects.* Teaching civics by projects and problems is an effective method of handling certain aspects of citizenship training. Of this character is a suggestive plan dealing with safety education—an essential feature of practical civics in the elementary grades—published in the *Fourth Yearbook* of the Department of Superintendence.[15]

[15] Department of Superintendence of the National Education Association, *Fourth Yearbook*, pp. 33*ff*.

Safety in Crossing Streets

For Grade IV

I. The Major Objective

To acquaint pupils with certain legal regulations concerning conduct with which they commonly come in contact, such as traffic regulation.

II. Preparation

(*a*) When we tune in our radio in the early evenings we hear a voice which tells us stories and sings us songs. This voice tells us that it talks daily to thousands of boys and girls, and that the owner is trying to do something for the children of the country. We learn as we listen that the owner of the voice is "Uncle Bob" speaking from KYW station in Chicago, and that he is the founder of the club known as "The Curb is the Limit Club." He goes on to tell us that kiddies can be members by simply agreeing not to recklessly cross the streets or carelessly play where wagons and automobiles are thick.

(*b*) The display of the "clock of death" of the *Chicago Tribune* showing automobile fatalities.

III. Pupil Discussion

(*a*) How are we to know when we are not to cross the street?

(*b*) How may we become a part of this club?

(*c*) There's no one on the streets to help us through the autos and wagons.

IV. Solution of the Problem

(*a*) Pupils may make lists of rules they knowingly obey in each day's travel to and from school. (Hints from teacher will uncover rules subconsciously followed by the pupils.)

(*b*) Each pupil may make a list of the dangerous crossings on his or her route; note and discuss aids for safety; presence of signs and warnings pointed out.

(*c*) Pupils may list persons and organizations responsible for such warnings; emphasize importance of

patrolman; teach relation of the law to the welfare of childhood.

(*d*) Pupils will make for their own instruction, posters, signs of warning, or advice, etc.

(*e*) Dramatization will furnish means of impression; duties of a traffic policeman; picture traffic complexities, for example: what course to follow upon the sudden discovery of the vehicle closer than at first suspected—to eliminate the too common "bewilderment of pedestrians."

1. Show pupils where various kinds of traffic have the right of way.
2. The meaning of the safety lane and safety aisle.
3. The way to read an automatic traffic sign.
4. To learn to keep to the right in traffic. This is of immediate and practical use in the school.
5. To learn to look both ways before crossing the streets; avoid "jay-walking."

(*f*) Have the pupils suggest ways in which they can promote greater safety for themselves, and thereby improve life for themselves, the motorist, and the policeman.

3. *Dramatization.* Dramatization is also serviceable in teaching civics. In the primary grades simple enterprises illustrating home making are useful, while in the intermediate grades, voting, law-making, or even mock trials are not too difficult. In *Citizenship in School and Out*,[16] Miss Harris suggests for the first grade a series of dramatizations requiring very simple equipment on setting the table, family serving one another, clearing the table, washing the dishes, playing games, and welcoming guests.

The illustration quoted below is the third in a series of plays given two or three times a week over a period of a month or six weeks. Pupils are chosen to take the part of the father, mother, grandfather, grandmother, guest, baby, brother, sister, and other members of the family. Before the dramatization begins the teacher talks over with the

[16] Dunn and Harris, *op. cit.*, pp. 38-39.

class what to put on the table, the way to arrange the dishes, who will set the chairs, who will call the father to supper, and similar matters.

Playing Tea Party

Playing tea party, with all the other children and the teacher looking on, seems a little strange to the children the first day that it is attempted, and though they enjoy it, they are quiet. The teacher is obliged to ask questions and make suggestions that will help the play along and keep the attention of the rest of the class. The children sometimes answer her in words, and sometimes merely do that which she suggests, showing by their bright faces and expressive gestures their pleasure in the doing. Anything that they do or say spontaneously, of course, is taken advantage of by the teacher in developing the lesson, but in the absence of initiative on their part, she shapes the play somewhat as follows: "Let us see whom Father will serve first." "To whom does Mother offer tea?" "Now has everybody either tea or milk and some bread and butter, nobody forgotten?" "While the family are eating, perhaps Father will tell—" (mentioning some schoolroom incident). "Has this family any dog or cat?" "When is kitty going to be fed?" "Will Mother tell one of the children what to give kitty for her supper?" "Is that the cake plate near Big Sister?" "Will she pass it and help herself when it has been around the table?" "Isn't it *good* cake?" "Did Mother make it?" "How prettily Big Sister arranged the flowers." "Did Little Boy pick them for her?" "Has everybody finished eating now, nobody left any good food on his plate?" "Then all can leave the table, and Little Girl can feed the kitten just as Mother told her."

As the play is continued on other days, the strangeness gradually wears off, the children grow less timid about exercising initiative, and the teacher is able to keep herself more in the background. She always, however, finds some suggestions are needed, and she always tries to make such as are not unsuitable to the children's own home conditions. There is often a demand upon her tact to avoid the chance of any child's feeling that the customs of his own home are criticized. The above lesson is of the sort given in a school where most of the children come from homes in which the mothers do the housework, and the members of the family serve each other at the table. In a school where

all the children's mothers employ servants, one of the children would naturally play the part of the maid, and the service at the table would be quite different, of course, but would give, perhaps, no less opportunity for thoughtful attention to the comfort of others. In a school where both types of homes are represented, the lessons can be varied from day to day, so that every child shall both recognize familiar customs and also learn of those practiced in other homes.

4. *Assembly programs.* Assembly programs may often be utilized to advantage for civic education. Addresses by leading and representative citizens, talks by pupils, and the dramatization of civic themes are all interesting and profitable. In an elementary school in Gary, Indiana, third-grade pupils gave a play to illustrate various aspects of immigration. The scene was laid in the home of a foreigner who had just returned from securing his naturalization papers. Eagerly greeted by the members of his family, he explained why he wished to become an American, the advantages of the United States over his native land, the steps needed to obtain his first and second papers, and his joy over becoming an American citizen.[17]

In a Chicago school two scenes were presented depicting family life. The first showed a disorderly, poorly managed home. The second, which was based on portions of Louisa May Alcott's *Little Women,* portrayed a well conducted household. The third-grade and fourth-grade children in Massachusetts schools prepared plays dramatizing the services of fire and the need for fire prevention.[18]

Equipment and materials. Citizenship training, to be effective, must be concrete. Hence, suitable equipment and materials in the form of books, magazines, maps, documents, reports, and visual aids should be provided.

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[17] John G. Rossman, "The Auditorium and Its Administration," Indiana Board of Education, Gary, 1927, p. 33.

[18] National Society for the Study of Education, "The Present Status of Safety Education," *Twenty-fifth Yearbook,* Part I (Public School Publishing Co., 1926), pp. 140-146, 155-157.

1. *Books.* Unfortunately the supply of supplementary books in civics for children in the primary grades is limited. Useful bibliographies will be found, however, in the Philadelphia, "Course of Study in Civics,"[19] pages 57-68; in Dunn and Harris, *Citizenship in School and Out,*[20] pages 141-144; and in Ella L. Cabot, *A Course in Citizenship,*[21] and in the Denver publication, "Social Science for the Elementary School."[22]

For the intermediate grades, books supplementing the work in citizenship, which may be placed in the hands of the children, are numerous. Among the titles especially serviceable for such use are the following:

Chicago Daily News Almanac and Yearbook, The (Chicago Daily News Co.). (One of the two foregoing yearbooks is essential as a means of securing up-to-date information about agencies and elements of community and national welfare.)

Coe, Fanny E., *Heroes of Everyday Life* (Ginn & Co., 1911). Stories and essays dealing with the diver, the telegraph operator, the civil engineer, the life-saver, the fireman, and the miner.

Compton's Pictured Encyclopedia (F. E. Compton & Co., 1923), 10 vols. This children's encyclopedia presents in readable form with a wealth of illustrations reliable and timely information on topics and themes entering into a well-balanced course of study in civics.

Fryer, Jane E., *Young American Readers* (John C. Winston Co., 1918), 4 vols. Essays, stories, poems, and memory gems illustrating civic virtues, occupations, and the work of the Red Cross.

Hardy, Marjorie, *Child's Own Way Series* (Wheeler Publishing Co., 1926), 4 vols. Stories, poems, and essays dealing with home, school, community, and nation, suitable for children in the primary grades.

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[19] *See* note 2, p. 460.

[20] *See* note 4, p. 460.

[21] *See* note 9, p. 464.

[22] Denver Public Schools, "Social Science for Grades I, II, III, IV, V, and VI," Course of Study Monograph No. 20, 1926.

JUDD, Charles H., and MARSHALL, Leon C., editors, *Lessons in Community and National Life,* Series C (Government Printing Office, 1918), Washington, D. C. Concrete and detailed essays, written by experts, depicting the political, social, and economic activities and agencies of the community and nation.

LASELLE, Mary A., *Home and Country Readers* (Little, Brown & Co., 1918), 4 vols. Selections dealing with home, country, outdoor life, and American ideals.

MCVENN, Gertrude E., *Good Manners and Right Conduct* (D. C. Heath & Co., 1918), 2 vols. Stories, poems, and essays dealing with such themes as faithfulness, generosity, service, industry, ambition, patience, courage, thrift, and trustworthiness.

New York World Almanac and Book of Facts, edited by Robert H. Lyman (New York World).

Other materials may be found by consulting the bibliographies listed on pages 482 and 483. In addition, useful supplementary references are listed in "The Social Studies for Grades V, VI, VII, and VIII," Curriculum Bulletin No. 5, Dayton Board of Education, 1927; and in Gertrude Hartman's *Home and Community Life* (E. P. Dutton & Co., 1923). The best recent list of textbooks is Amabel Redman's, "Classified Catalogue of Textbooks in the Social Studies," New York National Council for the Social Studies, 1927.

2. *Magazines.* Among the most serviceable periodical literature for pupils in the elementary grades are the *Weekly News Review,* a weekly published in Washington, D. C.; *The World Review,* a weekly published in Mount Morris, Illinois, and the *Geographic News Bulletin,* an illustrated weekly published by the National Geographic Society, Washington, D. C. Literature of the sort, when readily accessible to boys and girls, will add vitality to civics lessons, will supplement the work in history and geography and will awaken a live interest in current affairs.

3. *Maps.* Wall maps of the United States, the pupil's state, the local community, and the world are needed for civics as well as for geography and history. Excellent maps may be secured from the General Land Office, Washington, D. C., and from such commercial organizations as Denoyer Geppert Co., A. J. Nystrom Co., and McConnell School Map Co., all in Chicago. State maps are obtainable from the Department of State at the state capital. Local maps may usually be secured from the county surveyor, the county board, or the department of public works at the city hall. Outline maps for class use may be purchased from the McKinley Publishing Co., Philadelphia, Pa., or from the companies mentioned above.

4. *Documents and reports.* For illustrative purposes legal forms, official papers, and public reports have educative value. City ordinances and charters may be secured from the city clerk; state statutes and bills from the secretary of state at the state capital; federal statutes, bills, and presidential proclamations from the Department of State, Washington, D. C. Licenses, permits, deeds, warrants, jury lists, nomination petitions, sample election ballots, and official notices may be obtained upon request at the city hall or the county building. Specimen naturalization papers may be obtained from the Department of Labor, passports from the Department of State, patent papers from the Patent Office.

Reports of the activities of county officers and of the various municipal departments may be obtained upon request from the departments and officers concerned. Reports of state officials and public institutions may be obtained, usually without charge, by writing to the official or agency. Documents of especial interest are the reports of the department of public works, public health, and public welfare, and of such agencies as the school for the blind, the state university, and the state charitable institutions.

Reports of the federal executive departments, commissions, and bureaus may be obtained by request from the agency in question and from the Government Printing Office, Washington, D. C., Bulletin No. 2, 1918, "Guide of United States Government Publications," gives in outline form a concrete description of the publications of the various Federal agencies, listing the more important publications and the cost of each in case a charge is made. Publications of especial importance in the teaching of civics are the yearbook of the Department of Agriculture, the Public Health reports, the bulletins issued by the Children's Bureau, Reclamation Service, Weather Bureau, National Park Service, Bureau of Immigration, and by such independent Federal establishments as the Smithsonian Institution and the Commission of Fine Arts. Copies of the President's messages to Congress and the *Congressional Record* are also useful.

5. *Visual aids.* The value of graphic material for vitalizing civic instruction cannot be overstated. Pictures illustrating various civic activities can be obtained in magazines, in the illustrated supplements to the newspapers, and in such periodicals as the *Mid-Week Pictorial* (New York Times Co., New York). The Educational Panels published by the National Child Welfare Association, Inc., New York, are valuable for classroom use. Lantern slides, useful in the teaching of civics, may be obtained at small cost from the American Civic Association, Union Trust Building, Washington, D. C.; Keystone View Company, Meadville, Pa.; Earl Thompson Company, Syracuse, New York. Films for school use have been prepared by the Society for Visual Education, Chicago. A helpful discussion of the value and limitations of motion pictures for educational purposes is Don C. Ellis and Laura Thornborough's *Motion Pictures in Education: a Practical Handbook for Users of Visual Aids* (Thomas Y. Crowell Com-

pany, 1923). The Oregon "Course of Study in Safety Education," State Printing Department, Salem, Oregon, contains suggestive illustrations for posters. D. C. Knowlton's *Making History Graphic* (Charles Scribner's Sons, New York, 1925) is also a valuable aid.

Tests and testing. For obvious reasons testing in the primary grades in such subjects as civics should for the most part be informal in character. In the intermediate grades, however, more formal methods may be used with advantage. For such purposes new-type tests of the completion, matching, and multiple-response forms generally prove most satisfactory.

In constructing new-type tests care should be exercised to avoid misfire items such as are likely to arise from complexity in structure, from including irrelevant details, and from erroneous objectives. The tests should, of course, be planned to reveal the extent to which the desired learning products are being realized; that is, when knowledge is the goal, test exercises should call for information; when comprehension is the end in view, test items should center upon understanding; when attitudes are to be inculcated, test exercises should reveal whether the aim is being achieved; when skills are to be developed, test elements should measure the progress attained. An adequate testing program in civics in the grades under consideration should include means of ascertaining the degree to which civic knowledge, understanding, attitudes, and skills are being achieved.

Two standardized tests in civics suitable for pupils in the intermediate grades are now available. The first is the Burton Civics Test (World Book Co., Yonkers, N. Y.). It is designed to secure an inventory of the pupils' information in civics. It may also be used as a teaching device or as a basis for interviews, in which event much can be derived concerning pupil attitudes and judgments. Used

directly as a standard test, however, it measures but one outcome, information. Norms are ready at present for Grades V to IX. Sample exercises are as follows:

What is a ballot?
A piece of paper on which to vote
A committee which counts votes
A place where voting is done
What is a boycott?
A form of taxation used in foreign countries
Something like a reform school for bad boys
A refusal to do business with certain people

The second consists of three tests, all of the multiple-response type, each containing twenty exercises. The tests are designed to reveal the civic information of pupils, their attitudes on civic questions, and their conception of proper modes of civic action when faced by life situations. The pupil is directed to place a cross (×) before the response which he considers the best of the four that are suggested. Norms are provided for Grades VI to XII. Sample exercises from each test follow:

a. Hill's *Test in Civic Information* (Public School Publishing Co., Bloomington, Ill., 1926)
1. The highest official in a city government is:
(*a*) The fire marshal
(*b*) The mayor of the city
(*c*) The chief of police
(*d*) The city treasurer

b. Hill's *Test in Civic Attitudes* (Public School Publishing Co., Bloomington, Ill., 1926)
1. We should obey the laws in order to:
(*a*) Keep out of jail and escape punishment
(*b*) Win the praise of other people
(*c*) Set a good example to other folk
(*d*) Make our country safe and happy

c. Hill and Wilson's *Test in Civic Action* (Public School Publishing Co., Bloomington, Ill., 1928)
1. You have a pet dog for which you must secure a license.

To obtain the license you would apply to:
(*a*) The coroner or his assistants
(*b*) The county or city clerk
(*c*) A policeman or the sheriff
(*d*) An officer in the health department

Literature of the teaching of civics. The best source of information to enable a supervisor or a teacher of civics to keep in touch with developments in the teaching of civics is the *Historical Outlook* (McKinley Publishing Company, Philadelphia, Pa.); this periodical is devoted largely to tendencies, experiments, and movements in history and civics. The *Elementary School Journal* (Department of Education, University of Chicago, Chicago, Ill.) and the *Teachers College Record* (Columbia University, New York City) also contain numerous articles dealing with the social studies. An especially helpful periodical for knowledge of progress in the field is the *Teachers Journal and Abstract* (Colorado State Teachers College, Greeley, Colorado); this magazine devotes from forty to fifty pages of each issue to abstracts of articles dealing with educational subjects, classified conveniently under appropriate headings. The *Loyola Education Digest* (edited by A. G. Schmidt, 3441 North Ashland Avenue, Chicago, Illinois) also provides, on cards convenient for filing, condensed abstracts of topics discussed in current educational literature. Attention is also called to the "Record of Current Educational Publications," Bureau of Education, Washington, D. C., a bulletin giving an annotated list of practically all significant articles appearing in educational journals. The publications of the National Council for Social Studies are valuable sources of information about investigations, surveys, and developments in citizenship training.

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CHAPTER X

THE SUPERVISION OF NATURE STUDY

BY ELLIOT R. DOWNING

Associate Professor of the Teaching of Science, University of Chicago

Introduction. Those familiar both with the history of nature study and with the introduction of science into the curriculum will recognize that they are part and parcel of the same movement. The great industrial revolution gave to mankind a vastly increased earning capacity, substituting the tireless and mighty forces of steam and electricity for human brawn. Wealth increased with such rapidity that the child was no longer needed as a producer; he was freed to go to school. Then the school population ceased to consist merely of the children of the well-to-do classes and was largely made up of the children of the masses. That forced a revolution in the old classical curriculum, a replacement of the elegant studies that marked a man as above the common herd with those studies that dealt with the interests of everyday life. Thus science came into the schools with other new subject matter, the elementary science or nature study into the elementary grades, the more advanced sciences into the secondary schools and colleges.

After all, the responsibility for the improvement in science teaching rests primarily with the superintendent. He must be convinced that science instruction in an age of science is of prime importance. He must be willing to spend time in developing a course for his community that

has dependent continuity, that increases in difficulty commensurately with the increasing capacity of the pupils. He must organize the course in units with specific objectives and allocate them to the various school levels upon a basis of pupils' interests and needs. He must insist that the pupils have the necessary prerequisites for the advanced science courses, that pupils have the elementary science of the grades before they go into the general science of the junior high school, and that both these be prerequisites of the more advanced, broadly prevocational, special sciences of the senior high school. He must require proficiency in elementary science for graduation from the grade school, as he does proficiency in arithmetic, spelling, or writing, and a corresponding knowledge of general science for graduation from the junior high school. As long as a science class in the upper levels is made up of pupils, some of whom have had no previous science work, some little, some much, science instruction is bound to be seriously handicapped and the task of the science teacher or supervisor is rendered difficult, well-nigh impossible.

Unification of the science course. The purposes of nature study, the selection and organization of material for its course, the techniques of instruction, and the other problems connected with its administration in the schools are not to be considered by themselves. Science in the schools must be recognized as a whole, with nature study as its elementary portion, the ground work of its later superstructure. That knowledge of science will be imparted, those skills achieved, those attitudes of mind established that are most appropriate to the needs and capacities of young children. The job must not be attacked, however, as a disjointed task, but must articulate with the whole body of science instruction. What, then, broadly, are the purposes of science instruction—not in the school only, but through all the instructional agencies of society?

Curriculum construction. *The major goals.* Man as man has had a long history on the earth. He goes back a half million years at least. During that prolonged experience the human race has learned much. It has accumulated a vast fund of new knowledge, the basis of many complex skills; it has fundamentally altered its methods of thought and its attitudes of mind, and has developed a host of new tastes and ideals. Moreover, it has created a new world in which it lives, a world of intricate social institutions, of involved mechanical devices and processes, of new needs and new outlooks.

Education may be defined as a selective recapitulation of racial history. The little animal we call a baby must be brought up through its stages of dawning intelligence, savagery, and nascent civilization to this year of the twentieth century. It cannot be put through all the experiences of the race: life is too short. But it must be equipped with the most important outcomes of racial experience. It must be prepared to adjust itself successfully to the complexities of present-day civilization. Education must prepare the child to do in the *best* way those things *most worth* doing.

Science as a subject of instruction must put into the life of the individual pupil those most valuable things that science has contributed to the advancement of the race. Briefly stated, these are:

1. A knowledge of those principles or laws of science and the skills based upon them that are of maximum importance in the solution of problems involving his health, citizenship, effective home membership, wise choice of, and efficiency in, a vocation, etc.
2. Those emotionalized standards—interests, appreciations, ideals—that motivate action, which standards science has particularly helped engender, such as ideals of self-sacrificing devotion to human welfare, appreciation of the lawfulness of nature and a sense of man's moral obligation to conform to nature's laws, a love of truth, etc.

3. Skill in that type of thinking we call scientific, useful to the individual since it is the major means of solving life's complicated problems.

There is no consensus, no uniformity of usage and certainly no experimental proof, as to what particular principles and skills, what emotionalized standards, or what elements and safeguards of scientific thinking are of most importance or can best be imparted in the elementary science of the grades. Indeed, the average nature-study course is apparently content to give a knowledge of the names of common animals, plants, and physical objects, and an acquaintance with a variety of natural phenomena without any evident purpose in the accumulation of such information. The ends to be accomplished by amassing such facts are never or rarely stated, and one suspects that the course was formulated as busy work rather than as a means of accomplishing definite objectives.

The course should be outlined first in terms of specific objectives rather than in terms of the materials to be studied. Only so will the teacher be aware of the important things to be accomplished through the use of the materials of instruction. Moreover, a course so outlined will be easily adaptable to many different environments, for the same ideas may be imparted, the same tastes and attitudes of mind established by the use of the widely different materials that must be used in widely separate and different localities.

Certainly the supervising officer must put into the hands of teachers a detailed course of study if he expects the time devoted to the subject of nature study to give adequate returns. It must be clear not only what is to be done but what specific objective is to be achieved by each bit of curriculum material. The teacher of arithmetic at a given grade level knows that her pupils must acquire skill in addition and subtraction. The material of instruction put

in the hands of teacher and pupil is devised for that purpose and is adequate for the task. Imagine assigning a period on the daily program to arithmetic and leaving the teacher free to select for instruction any phase of the subject that appealed to her fancy! Or suppose she was told to give work in addition and subtraction but was forced to devise all the problems, was given no helps, no materials with which to work. Certainly no sane supervisor would expect superior results. The course in nature study must be definite, detailed, and clear as to the objectives to be achieved.

The more specific objectives. There is outlined below the materials for a course in elementary science in terms of the objectives to be achieved, classified under the three major goals. The materials are selected in part from the best courses of study, in part on the basis of feasibility as determined by the experience of successful teachers, and in part on the author's judgment. In view of the facts stated above, that there is no consensus or uniformity of usage, the element of personal judgment must enter to a much larger degree than is desirable. Only the facts derived from investigations yet to be made can correct this and give objective data to substantiate or modify judgment.

A. *Knowledge of Important Principles of Science Basic to the Most Desirable Skills*

Each principle to be of maximum value must be mastered through many applications to problematic situations to the point where it will function in the life of the pupil when he is face to face with a problem involving the principle. Ability to state a principle or law is no guarantee that it will be applied when needed.

1. The principle of the orderliness of nature, that every phenomenon has it cause, every cause produces its effect. Only as one realizes the chaos in the thinking and practices of man in the childhood of the race due to a lack of the comprehension of the lawfulness of Nature can

one appreciate how essential it is to get this conception early into the mind of the child. It is basic to all our skills in the control of natural phenomena.

2. The law of adaptation, namely, that every living thing must be nicely adjusted to its physical and biological environment in order to survive. The organism may adjust to the environment, change the environment to suit its needs, or migrate. Man is an organism subject to the same limitations, and to realize the possible alternatives in problems of adjustment will save the individual many a sad experience, and will enable him to understand many events in the past history of mankind and in present social movements.
3. A necessary corollary of this law of adaptation is the principle of the intimate interrelationship of organisms. The web of life is a tangled web. To make a change at one point is to affect many points. The relationships of organisms are so interwoven that any disturbance spreads like the ripples from a stone dropped into a pool.
4. All living things come from previously existing living things of the identical sort. This and the principle of the germ nature of disease must be comprehended if one is to be skillful in the avoidance of contagion by sterilizing wounds, the wise support of appropriate measures for disposal of sewage and garbage, the pasteurization of milk, support of hospitals, selection of sanitary living quarters, etc.
5. The law of the conservation of energy, namely, that energy cannot be created or destroyed, but may merely be changed from one form to another. Under this broad principle come many more specific ones, such as, that the work done by a machine must be the equivalent of the force put into it, and this in turn includes the law of the lever, of the pulley system, of the inclined plane. An understanding of the law of the conservation of energy is basic to intelligent skill in the use of machines. It is applied in the skillful selection of foods on the basis of their caloric value. It is essential to an understanding of the process of photosynthesis in plants on which hinge many of the skills in plant culture.

If a supervisor could feel that the science work of the grades had succeeded in giving pupils such a mastery of these principles that they would function when the pupil faced life problems involving them, he might well feel that the course had been thoroughly worth while. The order in which they are given is probably the order in which they should be introduced from the lower grades to the higher.

B. *Emotionalized Standards*

1. That attitude of mind we call curiosity needs to be developed. It is one of the functions of science teaching to keep sensitive the tentacles of curiosity. Older pupils, satiated with instruction, lose largely the joy of finding out things for themselves. The edge has been taken off their inquisitiveness by older persons who ignore their questions, repress them, or are bored by the child's rapid fire of inquiry.
2. A feeling of wonder, awe, reverence that comes from an appreciation of the vastness and complicated nature of the universe in which we live.
3. There should follow from a comprehension of the lawfulness of nature a sense of moral obligation to live in accordance with nature's laws. It will not necessarily follow unless pains are taken to produce it.
4. Such a feeling of admiration for the self-sacrificing devotion of the many great scientists to the welfare of mankind as will inspire the pupil to a like devotion.
5. The judicial attitude of mind, a desire to decide questions on the evidence in hand not according to prejudice or personal bias.

C. *Skill in Scientific Thinking as a Means of Problem Solving*

1. Accuracy in observation.
2. Ability to analyze a complex situation and pick out essential elements.
3. Ability to recall from past experiences those things pertinent to a problem under consideration.
4. Fertility of hypothesis.
5. Skill in experiments to test the validity of one's guesses on the solution of a problem.

6. Ability to arrange data in cogent form so as to make the conclusion most evident.
7. Ability to judge the pertinency and adequacy of data used in the solution of a problem.
8. Skill in reasoning to justifiable conclusions.

The grade placement of these items under B and C has not been experimentally determined. The order suggested seems to the author wise. In any problem all the elements of scientific thinking must be present, but in the lower grades such problems as involve observation for the major part may be selected, such as demand primarily facility in analyzing a complex situation may follow, etc.

Knowledge must result in a mastery of principles. The knowledge to be imparted in science must be in the form of laws and principles, to be functional in problematic life situations. It is impossible to train the child how to do all the things connected with science he may be called upon to do in life. The time available is too short. The list of such activities would fill a book. What may be done is to equip him with an understanding of those laws and principles of science that apply to the greatest number of such possible activities and give him drill in the application of such principles to a sufficient number of problematic situations. Thus, when he meets others, he will probably be able to apply the right law or principle to the new problem.

Thus a machinist is sent by his firm to set up and adjust some new machinery just sold to a Chinese firm. When he arrives in China, he is confronted with the problem of selecting a diet from a totally new lot of foods. To teach pupils in school lists of the appropriate foods to be used in various parts of the world to meet such an emergency is manifestly impossible. But if the man understands the law of the conservation of energy and has been given practice in its application to the selection of foods on the basis of their caloric value, if he knows the relation of certain kinds

of food to their vitamin content, and, further, if he knows the principle of the germ nature of disease, he will probably be able to select a healthful diet in the new situation.

In a very similar manner it is necessary to list in detail all those desirable tastes, ideals, and attitudes of mind that will serve to motivate the prescribed activities. These, in turn, must be classified to bring them under those few master tastes, ideals, and attitudes of mind, inclusive of the host of detailed ones—the few we can hope to establish in the short time in school.

The preceding discussion has aimed to make clear that the first essential in the successful teaching of nature study, and consequently the first care of the supervisory officer, is the formulation of a course of study in terms of the major goals and of the more detailed specific objectives. These latter must be assigned to their proper grade placement. Then those pupil activities must be devised that will tend to their definite accomplishment.

Pupil activities to accomplish objectives. To make tangible what is meant by devising pupil activities that will lead to the achievement of specific objectives, follow the three bits of curriculum given below.

(*a*) Mastery of a Principle. Suppose, for instance, in illustration of the first objective the teacher is trying to make clear the tangled web of life, the law of the complex interrelations of animals and plants, so nicely adjusted that to disturb one element in it is to affect very many, perhaps all others. As I write, the bronze grackles and robins are running about on the lawn in front of my window. They trot along for a few paces, then stand at attention, head cocked on one side. Again the advance, and then the attentive attitude is struck. Suppose the teacher asks the children to find out what they are doing, to watch them to see what this running about means. The sharp-eyed youngsters will soon see what I have repeatedly seen. Every

little while a bird pounces on a certain spot, pecks frantically at the sod, making the dirt fly as it digs and pulls out a big white grub. I wonder how the birds tell where to dig; they seldom fail in locating the larva. Likely some child will recognize it as the young of the June beetle, for he has seen it dug up in the garden. Possibly the teacher must tell them what it is.

Suppose we use a nature-study period in counting the number of these grubs that are found and eaten or taken away to feed the young nestlings. Assign each pupil a stretch of the park or field to watch and keep count on his territory. I counted fourteen dug up in twenty-five minutes one June day on a plot about 200 feet square, as I sat on a near-by bench in the city park. This park contains some 1,200 acres. Suppose that is going on at such a rate from sun-up until sunset all over the park, how many grubs will be eaten?

Now the books will tell us that these June beetle larvæ feed on the roots and underground stems of the grasses. If the birds were not so busy, pastures might easily be spoiled, the grass largely killed. Then browsing cattle would have no food and we should have little milk and butter. This reminds one of Darwin's famous instance of the interdependence of living things. It will be novel, at least to the children. Bumble bees cross-pollinate clover blossoms. If the bees are absent, the clover will not produce much seed, and since the seed must be present to produce the next year's crop of clover, no bees means no clover. But field mice eat up the larvæ of the bees found in their underground nests. The more field mice the fewer bees, the less clover, the fewer fat cattle, and so the higher the price of beef. But cats capture the field mice; so cats really keep down the price of beef.

Assign readings now to make children realize how great a menace to our crops the insects are. They eat up about

a billion dollars' worth of our farm and garden produce yearly. And they multiply so rapidly! A single pair of potato beetles could produce 60,000,000 children, grandchildren, great-grandchildren, etc., in one summer, if nothing interfered with the happy family. One pair of flies starting in April will similarly produce 69 bushels of flies before the end of the season.

From these insect pests the birds are our chief deliverers. The birds of Massachusetts eat 87 freight-car loads of insects daily all summer long. A single flicker has been found to eat 1,500 ants for one meal. The Maryland yellow-throat has been seen to gobble plant lice at the rate of 90 a minute for twenty minutes. Such facts are to be found in plenty in the bird books. Children will accumulate such from assigned readings and similar ones from their own observations.

My class watched a nest of house wrens from 5:00 A.M. until 8:00 P.M., two persons on watch each hour, who were then relieved by another pair for the next hour. The young were fed with at least one insect or larva on an average every 4½ minutes all day long. Any group of interested pupils could duplicate such an experience.

Man himself is a part of this tangled web of life. He must study to help his friends so they will protect him from his foes. Children can help protect the birds that protect man from his insect enemies. Feeding shelves, bird baths, drinking fountains, nest boxes should be made and set up in the yards at home; trees and shrubs can be planted that bear fruits the birds like and that afford nesting sites. The teacher should rest content only when these things are done.

Read "The Web of Life," Chapter V, in Thompson's *The Wonder of Life;* Longfellow's *The Birds of Killingworth.* Read how the legislature of Pennsylvania put a bounty on all hawks and owls because they were supposed

to feed largely on the farmers' poultry, but repealed the law a few years later when they found the mice, rats, gophers, and other animals these birds ate were devouring the farmers' crops.

Here is a unit aimed primarily to give pupils an understanding of an important principle and its application to life situations—a knowledge that the teacher will see carries over into wise action. Incidentally, the pupils have also acquired some skill in scientific thinking, observing for themselves and reasoning on the basis of the facts obtained to reach their own conclusions. They may have begun to achieve some new tastes and ideals also. There has been one main objective and some useful and valuable by-products as well.

In such a unit the supervisor will observe to see that all pupils are sharing interestedly in the work, that all understand the successive steps and see their significance. She will judge the teacher's success largely in terms of the appearance about pupils' homes of bird boxes, feeding shelves, and by other evidences that the main idea is being applied to life situations.

(*b*) Skill in Thinking. When the major objective is to give pupils skill in the elements of scientific thinking, the problem or project method must be adopted. The word *project* is used to designate a problem in the concrete, one whose solution is expressed in objective outcomes. This method is needlessly slow when knowledge is to be acquired. Some knowledge will be obtained in the solution of the problem, but it will be a valuable by-product, not the chief thing sought. The teacher will now be concerned with watching the thought process of pupils and guiding it effectively.

Suppose the project is for each pupil to make and fly a kite. No one in the class has done this before, but several pupils have seen kites flying. They recall that kites had a

frame of sticks with string run around the edge of the frame. Then this frame was covered with paper. A tail made of strips of cloth was fastened to one end of the kite. String was also tied to the kite to hold it while flying. Perhaps, if no one can recall how a kite is made, pupils can look at one in a store window or see one some older pupil has made and so observe how to put one together.

Each pupil brings from home the necessary material, sticks, string, paper, scissors, paste, or the school may furnish these. Then follow several nature-study periods when kites are undergoing construction.

"How long should the tail be, teacher?"

"Where do I tie the string onto the kite?"

"I do not know," the teacher replies. "Do the best you can, recalling what you have seen, and when we try to fly them we can find out about some of these things."

Then comes the eventful day of good wind when the kites are taken out to fly. What fun! John recalls how he has seen kites sent up. He gets Sam to give his kite a boost while he runs against the wind and his kite goes sailing up higher and higher as he lets out more and more string. "My, how it pulls. I never knew the wind was so strong," he remarks as he gets this new experience.

But Mary and Beth are having a hard time. Mary is running with the string in hand, and Beth is boosting the kite like Sam did for John. Her efforts are fruitless, however, until John says, "Turn round, Mary, and run against the wind. You will never get your kite up running with the wind."

"Why not?" says Mary, and John is thinking, Why?

But Mary takes John's advice and finds it works; her kite is up, too.

Meanwhile Frank's kite is cutting circles when it gets up a bit, and then it comes down with a bang. He looks at his and then at John's. "I guess the tail on mine is too

short.'' So he ties another length or two of cloth on the end of the tail and then his goes up and behaves quite well. ''Teacher, why do you have to have the tail so long?'' There is another question for class discussion.

Teacher is trying to help Ann put her kite up, but it won't go. It comes down every time. Disconsolately, Ann is looking, as the class goes back to school, at the kites of John and Frank and Mary that flew so well and comparing them with hers. Then she comes to the teacher and says, ''I think I know why mine would not go up. The sticks of the frame are too big; I thought they should be large to make the frame strong, but I know better now.''

''Are you certain you know, Ann?''

''Well, I think that must be the trouble.''

''How will you make sure?''

''I shall take the paper and string off this kite and shave the sticks down till they are light. Then I will use them again in a kite. If it flies, that should show the heavy sticks were to blame.''

''Good!'' teacher replies. ''You see we must not jump to hasty conclusions but prove our guesses about the solution of problems. If people do not do that, they are likely to believe many silly things, such as that handling frogs gives you warts or that a horse hair changes to a snake if put into water.''

Of course some of the kites are wrecks, and some balls of string are hopeless snarls, but enough success has been won to start kite-flying as a leisure-time occupation, and all the pupils are bound to make a kite that will go up. Books on kites and kite-flying are in demand at the library. When the next kite day comes on the nature-study program, some new types of kites appear. Frank has a large kite with a big face drawn on it in colored crayons that calls out many a laugh as it bobs about up in the air. John has a box kite. It does not require a tail, and he wants to

know why. Mary's kite sails low over the distant trees, while Sam's goes almost straight up overhead, and that raises another question.

The pupils are seeing problems and learning to solve some. They are observing for a definite purpose, making comparisons, picking out essential things, guessing at the solution of some of their difficulties and trying out their conclusions experimentally to see if they are right. They are thinking, reasoning, judging. And some of the questions and experiences that are accumulating will be very worth while when in later work notions of the force of the wind are needed, or facts for understanding inertia, decomposition of forces, etc.

In work of this type it will be the supervisor's concern to see that the problematic situations used are adapted to the age of the pupils, that they are of such a nature as to challenge the interest of pupils and result in comprehension of concepts or principles that are of real value. They must be primarily adapted, however, to insure drill in problem solving. While the teacher is the leader in the work, her success will be judged by her ability to stimulate the thought activity of the pupils. She must not think the problem through for them. Do the pupils clearly understand the problem? Is it well defined? Are pupils alert, quick to observe, apt in devising experimental tests of their guesses as to the solution? Do they spontaneously recall their past experiences to apply to the question in hand? Are they being guided to pick out essential elements? Are they asking questions and being wisely directed to discover the answers to them? In the class discussions, is the teacher skillful in obtaining from pupils accurate statements of their significant experiences, of their inferences from such, and of their bearing on the problem in hand? Are such new ideas or principles as may be discovered clearly perceived and stated by the pupils?

Are pupils critical, open-minded, impartial, ready to judge only on the basis of evidence in hand?

(*c*) Developing Emotionalized Standards. The technique used for developing new ideals, desires, and attitudes of appreciation, for the discovery of aptitudes and the development of tastes based upon them will be quite different from those already discussed. The response that is desired is an emotional one. It may come through new knowledge that is acquired or through enjoyable activity in some project or field trip, but it is a thing apart from the knowledge or the activity, an additive element which must be achieved. The knowledge may be imparted, the activity participated in, and yet the pupil may not get the desired emotional stimulation. It is a contagious thing, passed from one who possesses it to one who does not.

Let the teacher saturate herself with the biography of Louis Pasteur until her soul is aglow with his contagious enthusiasm for devoted service to his fellow men, and then, as she tells the story of his life to her pupils, they will feel the fine fire of his zeal, if, and only if, she has caught his spirit so her own actions are guided by it.

A teacher is out on a field trip with a group of pupils. After lunch some of the pupils are skipping stones out on the water of the lake. The teacher says, as one lad picks up a stone, "John, do you know how old that stone is you have in your hand?"

John replies carelessly, "No, how old is it?"

The teacher has noticed that it is a bit of quartzite from the old Archæn beds of northern Wisconsin. "That," she says, "is five hundred million years old." Then and there she tries to tell them, in an impressionistic way, the story of that bit of stone. If, now, there creeps into her voice that tone of awe which the history awakens in her, the children catch her emotional attitude and are stirred by the wonder of it all. John looks at his stone with a new

sense of appreciation. "Gee, five hundred million years old!" It goes into his pocket to be treasured among other valuables because it has stirred new depths of his being. He may not have understood very well the geological history but he did vibrate in unison with her deep feeling.

Pupils are out with the teacher some night learning the names of some of the brighter stars and of the more conspicuous constellations. Under the night sky she tries to tell them of the immensity of these suns they are seeing and of the vast distances from them to us. The facts she is telling them are expressed in such enormous numbers they have only dim meanings to their minds, but if during the recital the teacher's voice betrays her feeling of reverence, the emotional response is sure in them. The night sky has new meaning that will express itself when some child, alone beneath it, falls on his knees to worship.

Supervision that will insure such results is difficult of attainment, for they depend on the teacher's personality, a resultant of many complex factors that have worked in her whole past life. At least the supervisor can bring her teachers to see the value of such emotionalized standards and give them a general notion of the technique of their production. She can suggest some of the seers whose writings are vibrant with their own feelings for nature, like van Dyke, Thoreau, Wordsworth, Tennyson, Abbott, the Psalmists, in the hope that teachers are still plastic enough to be impressed by their inspiring interpretations.

The above three examples of curricular materials have been presented not in bare skeletal form but vivified with the flesh and blood of pupil and teacher activities for the accomplishment of the ends sought.

Before the pupil can be brought to a mastery of such principles as have been stated above, he must have clarified, by experiences that will build up his apperceptive mass, many concepts required in their statement. Many con-

tacts with things and phenomena, too, will be needed to give him a basis for acquiring new emotionalized standards. And he must be led through the solution of many problems, simple ones at first, to achieve skill in the scientific method. The work of the lower grades must prepare him for that of the higher. So the science course will have the dependent continuity, that increasing difficulty commensurate with the pupil's increasing capacity, that will make it a real course, not a series of disconnected and unrelated fragments.

Samples of curricula. There follow some excerpts from certain courses of study that outline the type of work recommended to accomplish such results. These are mere skeletons, and the reader must use his imagination to add the vital parts.

GRADE IV[1]

AUTUMN

Gardens	*Pets and Domestic Animals*
Cover strawberry bed; prune currants. Transplant iris, hollyhock, larkspur, and phlox to their permanent positions. Take up and care for caladiums and cannas. Plant green fertilizer like red clover, soy beans, or vetch on one-half of plot to be used as an experimental plot next spring.	Aquarium studies. Make aquaria: stock them with pond plants, small fish, insect larvæ, etc. Learn to recognize the common kinds; myriophyllum, milfoil, bladderwort; Linnæa, Planorbis, and other snails; nymphs of the May fly, damsel fly, dragon fly, water bug, water scavenger beetle, the water skater, whirligig beetle, water scorpion, etc.

WINTER

Garden work has thus far been community work—let it	Aquarium studies. Continue the aquarium in the school.

[1] The course for kindergarten and Grades I-VI is published in full in the *Nature Magazine*, Vol. 3, Jan.-June, 1924.

from now on be individual except in the school garden which will serve as a demonstration plot; the pupils' gardens will be home gardens. Each pupil will plant daffodils in pots and trench them and rear them at home. He will grow paper-white narcissus and pot marigold at home also for the flower show. Grow jonquils in the school window boxes.

Study the behavior of the crawfish and other crustacea, such as the fairy shrimp, the bender, Asellus, cyclops, etc.

SPRING

Plan individual gardens on home plots and have pupils grow a succession of crops to get maximum returns from a small plot of ground, thus:

radishes followed by kale

Peas, then parsnips.

* o * o * o * o * o * o * o

Hills of sweet corn with pumpkins.

Frogs and toads. Development of the eggs. Watch the development of the egg to the tadpole and the change of the tadpole to the adult. Learn to recognize the common frogs, bull frog, leopard frog, pickerel frog, tree frogs, etc. Provide attractive retreats for toads in the garden, holes covered with boards, and learn why the toads are valuable in a garden.

AUTUMN

Toys and Home Appliances

Let children make and use giant stride to get experience with centrifugal force. Whirl a pail with some water in it about your head; why does the water not fall out when the pail is upside down? Make a sling shot like David used with which to kill Goliath. Spin tops. While spinning on your hand, incline the hand; why does top

Correlated Materials

Collection of fall insects, butterflies, moths, beetles, locusts, bees, dragon-flies, housefly, mosquitos, and ants. Protective coloration, mimicry. Beneficial and injurious insects.

remain erect? Let a spinning peg top slide down a string held tightly, from one hand to the other.

WINTER

Make gas with coal packed in the bowl of a clay pipe. Close the mouth with clay and heat the bowl. Will the gas burn? How is a house piped for gas? Make chlorine gas as a school room demonstration. Heat baking powder in a test tube with a delivery tube through the cork to get off the CO_2 gas. (Why bread rises.) Make and explode gunpowder.

Study of mold. Experiments to show spore carriage and sterilization. Edible mushrooms. Ferns and other spore bearers.

SPRING

Make fire as the Indians did with a bow and stick. Make fire with flint and steel. How a match starts a fire. Make oxygen gas and show how readily a glowing stick bursts into flame in it; how iron wire burns in it. How to make a fire in the woods to heat a pail of water quickly; to make one that will last all night; one that will throw its heat into the tent.

Make a map of some block or of a wood patch to show its trees. Know the common trees: Ailanthus; ash,—red, black, blue, white;—balsam; birch; catalpa; black and choke cherries; dogwood; red and white elms; black gum; hackberry; hawthorn; hemlock; larch; black and honey locusts; ash-leaved, Norway, red, rock and soft maples; mulberry; black, bur, pin, red, scarlet, white oaks; pawpaw; pepperidge; pine; aspen, balsam, cottonwood, Lombardy, and silver poplars; redbud; spruce; tulip tree. Good shade trees and ornamental shrubs. Planting home grounds.

BEES [2]

I. Introduction

II. Objectives:
- (*a*) Ability developed for continued and keen observation
- (*b*) Observation of the organization of the hive
- (*c*) Observation of the hatching of the babies
- (*d*) Observation of the wax and honey making
- (*e*) Observation of the external structure of the bee
- (*f*) Appreciation of the work necessary to produce a pound of honey
- (*g*) Appreciation of the self-sacrifice of the bee for the benefit of the swarm
- (*h*) Appreciation of the ability to work together for the common good of the swarm
- (*i*) Appreciation of the bee's work in the cross-pollination of flowers
- (*j*) Appreciation and possible memorization of some choice bits of literature

III. Bibliography

IV. Suggested Activities:
- (*a*) Observe the hive for a week or so with suggestive questions on the board to guide the observation
- (*b*) Discuss the different kinds of bees
  1. Workers, young and old
  2. Drones
  3. Massacre of the males
  4. Queen

V. Questions that children will ask about bees.

VI. Discuss the Activities of the Bees:
- (*a*) Foundation of the city
- (*b*) Making new cells
- (*c*) The different kinds of cells
- (*d*) Hanging in ropes
- (*e*) Coming to hive with legs filled with pollen

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[2] An outline by Theodosia Hadley, Western State Normal School, Kalamazoo, Michigan.

(*f*) Pollen baskets
(*g*) Putting honey in the cells
(*h*) Cleaning the hive
(*i*) Going out probably in search of honey
(*j*) Talking to each other
(*k*) Finding the way back to the hive
(*l*) Swarming

VII. Structure of the Bee:
(*a*) Pollen baskets
(*b*) Leg brushes
(*d*) Eyes
(*e*) Tongue of worker
(*f*) Stinger
(*g*) Comparison of structure of drones and worker
(*h*) Antennæ

VIII. Collecting bees for structural study.

IX. Correlation of bee study with art, English both oral and written, writing.

Who is not interested in hobbies? Bee-keeping is a fascinating hobby. Most hobbies are expensive luxuries. The hobby of bee-keeping is just as exciting and just as much fun as any other hobby and yet it keeps filling the pocketbook as well as supplying the lunch table with a delicious and wholesome food.

Do not be discouraged from attempting to take up this hobby because you are not informed about bees. It would be much less fun if you knew all about it. Most state agricultural colleges have pamphlets on bees. The U. S. Department of Agriculture at Washington has the following bulletins which may be had by writing for them:

"The Bee," by E. F. Phillips, Farmer's Bulletin No. 447.
"The Control of European Foul-Brood," by E. F. Phillips, Farmer's Bulletin No. 975.
"The Treatment of Bee Diseases," by E. F. Phillips, Farmer's Bulletin No. 442.
"The Wintering of Bees," Farmer's Bulletin No. 1012.

The following books are not expensive and are interestingly written. The children will enjoy finding answers to questions that they cannot answer through observation.

The Bee People, Margaret Warner Morley (McClurg, 1923).
The Children's Life of the Bee, Maurice Maeterlinck (Dodd, Mead, 1924).
The Bee, Maurice Maeterlinck.

The following bulletins may be obtained free of charge from firms interested in selling bee supplies:

"Beginning Bee Keeping," Root & Co., Medina, Ohio. Prices on bees and bee hives may be obtained from this company.
"Bee Supplies," Root & Co., Medina, Ohio.
"The Bee Primer, How to Produce Honey," The Lewis Bee-ware Co., Watertown, Wisconsin.

SUGGESTED ACTIVITIES

The following is one way of directing the observations of the children.

After the hive has been placed in the window and the bees have been installed in their new home, put the following suggestive questions on the board to find out which child will be the first to make a correct observation.

1. How many different kinds of bees can you find in your hive?
2. What differences do you see in the bees in your hive?
3. How many different things do you find the bees doing?
4. What is happening in the cells?
5. Which bee, the worker, the drone, or the queen, makes the cells where the eggs are laid?
6. Which bee makes the cells where the honey is stored?
7. Who will be the first to find a baby coming out of a cell?
8. Who will be the first to make this very difficult observation —to see the queen laying an egg?
9. Who will be the first to describe what the bee looked like when it is first hatched from the egg?
10. Who will find out how the little worm or larva eats?
11. How many days is the larva fed before it turns into a pupa?

The above questions have all been answered by observing the

bees in our demonstration-observation hive. The children did not find the answers to all of the questions in one season.

Our children have done their work in an observation hive. This is more expensive than the usual wooden out-of-doors hive, but it is much more satisfactory for the school room as the bees can be observed any time of the day without being disturbed. Our observation hive is placed on a shelf in a south window sill. The window is raised to permit the bees to go out or enter the hive whenever they wish. The space between the hive and the edge of the window is filled with a board so that the bees will not come into the school room.

Some worker bees very accommodatingly built some cells on the glass facing the room. In these cells the children saw the entire process of producing a bee. They saw the queen escorted to the cell. They watched her go into the cell and inspect and then lay an egg in it. They timed the incubation of the egg. They saw how the larva was fed and washed. They timed the pupation period and saw the emergence of the baby bee.

This could not have been observed in the usual wooden hive. The hive and the bees are expensive, but the bees will soon pay for themselves. Our children make about $15.00 a year on their bees.

The children have learned to like the bees so much, and they have developed such a sympathy for the bee's problem that when a bee does get into the room there is no commotion. A child quietly gets up and opens a window nearest to the bee so that the bee can get out and go on with her business.

The following courses of study are suggestive. It would be unwise to follow any one of them slavishly but best to select from them those units that promise best to accomplish the specific objectives listed above or such others as the supervisor deems wise to add or substitute as desirable in his particular locality.

The Baltimore County Course of Study (published by Warrick and York, Baltimore), Illinois State Course (Public School Publishing Co., Bloomington, Illnois), the courses of Cleveland, Toledo, St. Louis, Denver, Sacramento; the courses used in the practice schools of the state normal schools at Kalamazoo, Michigan, Mankato, Minne-

sota,[3] Plattville, Wisconsin, The School of Education of the University of Chicago.[4]

Methods of teaching. The methods of teaching in elementary science will vary according to the objectives to be achieved. If the teacher is trying to give pupils an understanding of some principle or clear-cut concepts of objects and processes to the end that they may gain an understanding of important environmental factors so as to control them, simple presentation with demonstrations or field work will probably be the most suitable method. If skill in problem seeing and problem solving is the objective, then pupils must be faced with problematic situations and be led through the various steps in their solution. If tastes, ideals, and other emotionalized standards are to be developed in pupils, the method of procedure must be adapted to the particular end sought. This does not mean that a unit of work will necessarily result in only a single outcome. It does mean that each unit should be undertaken primarily to accomplish some one definite thing and that other values will enter as by-products, valuable but not of major importance.

Experiments and demonstrations. Experimenal studies of pupil experiments and of teacher demonstrations in science have shown that even at high-school and college levels the purpose of the experiment and its significance are apprehended by a very small percentage of the students. How the apparatus is set up and what happens in the course of the experiment is reasonably clear, but what it proves is largely unknown. The experiment, therefore, is interesting busy-work but of little value for teaching purposes unless the instructor prepares pupils to appreciate

[3] Published also in Gilbert H. Trafton, *The Teaching of Science in the Elementary Schools* (Houghton Mifflin Co.).

[4] *Elementary School Journal*, Vol. 26. *See also* the *Classroom Teacher*, Vols. 5 and 9.

the need for it and leads them to watch for its meaning and to state clearly the significance of its outcomes. The supervisor needs: (1) to counsel the teachers regarding these common defects of the experimental method; (2) to watch its use to make certain (*a*) that pupils are led up to the experiment carefully, (*b*) that they are forced by appropriate questions to see why it is introduced in the study and (*c*) to think through to its meanings. It is useless for pupils merely to repeat, parrot-like, the teacher's statement of what it proves. If pupils cannot see for themselves what is proved, the experiment must be simplified or, if that is impossible, it must be carried to a higher school level.

The experiment must be carefully planned and executed. As it proceeds the teacher must be constantly quizzing pupils to see: (1) that they understand what bearing it has on the problem in hand; (2) that they know what is going on; and (3) that they sense the outcomes and properly interpret their meaning. (4) The whole group must be kept busy thinking; (5) their thought processes, supervised; and (6) their errors must be corrected. A teacher may be a skillful manipulator and perform the mechanical details of an experiment admirably and be a total failure from the teaching point of view. The essential part of the process is going on in the minds of the pupils, and, unless that is supervised, directed, ordered, and assured of appropriate outcomes, the experiment is worthless. The supervisor must evaluate the teacher's skill in terms of her success in thus superintending the mental processes of her pupils, not in terms of the manipulation of the physical materials.

Field trips. In a similar way field work must be carefully planned and conducted. To take a group of children out-of-doors and try to direct them on the spur of the moment in worth-while work is to assure failure. (1) A field

trip, like an experiment, is to be undertaken only when the pupils have a felt need for the information that is to be acquired by it. (2) They must be conscious that they lack clear-cut percepts, or accurate notions of relations and sequences, or other things which the field trip is to supply. (3) They must be given detailed directions for their activities on the trip, just where they are to go, the location of the objects to be examined, what they are to look for, feel, smell, what records they are to keep. (4) They must be prepared to fit the observations into their felt needs, and the teacher (5) must supervise this process during the trip, stimulating it by appropriate questions. (6) Evidently the teacher must go over the ground in advance. (7) It would be well to provide each pupil with mimeographed directions and questions in advance, or dictate these to pupils before starting. With little children, where that is impracticable, the group must be kept close to the teacher and given oral directions as needed. (8) Field work may be done individually by older children who are provided with the carefully worked out directions quite as well, perhaps better, than by the group as a whole. Out-of-school time may then be used by pupils at their own convenience and when they go by themselves or with a companion or two, the distractions that almost necessarily arise in the larger group are avoided. (9) There must needs be time after the trip for class discussion when the teacher may make sure that every one has acquired the desirable experiences, recorded them appropriately and ascertained their significance.

The supervisor must see, then, that (1) a need for the experiences of the field trip is sensed by the pupils; (2) that they are given explicit directions; (3) that they are independently busy on the work in hand while on the trip; (4) that appropriate mental activities are going on; (5) proper records kept; and (6) that in the class discussion

that follows, the work is assured of significance through the pupils' own interpretations. She may well use two or three meetings with her teachers to discuss the technique of experimental work and field trips. It would be helpful to the less experienced teachers if some reasonably expert teacher in the group could give a properly conducted demonstration to elucidate the points discussed above, another conduct a field trip in an approved manner.

Aids. The supervisor may suggest some aids to the conduct of such work. Unwin [5] raises a number of pertinent questions that likely will occur to children in their work with aquaria and suggests ways in which pupils may go about it to solve them for themselves. The Comstock Nature Study Co. [6] issues a number of field notebooks on trees, wild flowers, birds, fish, etc., that help on accurate observation, record, and identification in the study of such forms. The field and laboratory guides in physical and biological nature study [7] organize such work for the teacher so she can adapt it to pupils. The Cornell Nature Study Leaflets offer many suggestions of teaching devices, including nature games that aid in the conduct of field work.

The problem-project method. The term project is used in the sense of a problem, the answer to which is to be expressed not in words but in the concrete. Thus, to construct an electric motor so it will run, to make a strawberry patch pay fair wages for the time and money invested, to rig up, with easily obtained materials, a force pump to demonstrate the principles involved, are projects. The chief value of the problem-project method is in the opportunity it yields to develop skill in scientific thinking.

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[5] Ernest Ewart Unwin, *Pond Problems* (Cambridge University Press).

[6] Comstock Nature Co., Ithaca, New York.

[7] Elliot Downing, *Field and Laboratory Guide in Biological Nature Study* and *Field and Laboratory Guide in Physical Nature Study* (Longmans, Green & Co.).

It is a tedious and time-consuming method for imparting knowledge. Both teacher and supervisor need to see that pupils are led through the problem-solving process repeatedly, that they are gradually made aware of the elements involved in it and of the safeguards that must be observed to make it truly scientific.

1. Observation must be (*a*) purposeful, (*b*) accurate, and (*c*) sufficiently extensive to afford an adequate fact basis for the solution of the problem in hand. Much of the work in elementary science in the grades must be given to the accumulation of such factual material as will clarify concepts needed in the statement of problems and in the solution of present or future problems. The child often jumps to hasty conclusions because he lacks this background of rich experience. Such facts as he thinks he has obtained are often faulty because his senses are immature, needing the control that comes from repeated usage.

2. The recall of past experiences needs to be selective, making use only of those things that have a bearing on the present problem. The child needs constant training in judging the pertinency of his factual materials to the problem under consideration.

3. Skill must be developed in picking out essentials in a complex situation. The pupil is faced with the problem of telling from a number of specimens before him what are the distinguishing characters of the group of insects. He must decide in what essential characters they are alike, in what they differ from other animals.

4. The pupil needs to be encouraged to make his own guesses as to the solution of a problem. Fertility of hypothesis assures the consideration of all possible solutions of the problem.

5. Then the pupil must be led to test out his guesses by accumulating added facts, often by experiment. Given an electric bell that will not work and confronted with the

problem of putting it in repair, one pupil will try tightening this screw, loosening that, bending the wire of the hammer this way or that, monkeying with it, trying to find by trial and error what is wrong. Another pupil will try to see how the current running through the bell makes it work. He will try to understand the essential relationships between parts that make it run. Then he will formulate his guess as to what particular relationship is defective. He will correct this and try the current to see if the bell will ring. If not, he observes more carefully to detect the cause of failure, makes another guess, and tests it out. The latter pupil is proceeding in a scientific way. He is developing his resourcefulness, his fertility by hypothesis.

6. Ingenuity in devising experiments to test out hypotheses suggested for the solution of a problem needs development. So the pupil is led to appreciate the purpose of the experiment and to see clearly the significance of it.

7. Drill in arranging the factual materials so they will point straight to the conclusion is essential.

8. The reasoning process must be supervised.

9. The pupil must be drilled in stating his conclusions clearly and accurately.

The experiences brought to the child need wise selection and his interpretation of them must be carefully supervised, else he will be forever confounding essentials with nonessentials, misled by analogies and confused by distorted mental imagery. The young child is easily fatigued. His power of attention is limited and he must not be expected to observe and interpret for long at a time.

The child early manifests ability in reflective thinking, though only on concrete situations. Power of abstraction comes slowly. Naturally the child does not think as much as the adult, for his adjustments are largely mechanical, learned by imitation. He is learning how to dress himself, how to use utensils as his elders do, and other similar items.

His efforts at an understanding are frequently discouraged as his incessant questions become tiresome to adults, or his investigations are punished when he pulls the clock to pieces to see what makes it tick, or breaks open his horn to see what makes the noise.

Elementary science affords an opportunity to foster rather than repress his inquiries and to direct them so that he will become adept in seeing, stating, and solving problems.

Tests. Unfortunately there are no standardized tests in nature study. Those in the next higher science subject, general science, are still largely memory tests of factual material and are misleading in their suggestions for the elementary-science teacher. Just as arithmetic tests try to discover a pupil's skill in number work, or tests in reading aim to evaluate the pupil's ability to read profitably, so tests in nature study should test the pupil's ability to study and interpret nature. This opinion is stated in the hope it will lead teacher and supervisor away from the mere memory type of question to the formulation of more significant types.

Ask the little people to see how many different kinds of plants they can find in a weed patch (picked for the purpose) say ten feet square, that you mark off with corner stakes and string. One group found twenty-seven and could tell the names of a dozen.

Mechanical puzzles are excellent tests for older pupils. Ask them not to try to do the puzzle by the trial-and-error method but to look at it carefully, see how it is put together and then try to reason out how it must be done. When each one has a theory of how the puzzle is solved ask them to write out their solutions or to tell you in turn and see who has been able from inspecting it to formulate a true guess of the solution.

Suppose the class has been studying the principle of

buoyancy. Set up this apparatus: Fill a large bottle with water. Fill a small vial that will go into the big bottle partly full of water. Quickly put it mouth down into the big bottle. A few trials will enable you to judge the amount of air to be left in the vial so it will just float in the larger bottle of water. Now stick your finger into the larger bottle so a little water will spill out of it. Put a cork in its mouth and press down on it. The small vial slowly sinks. Loosen the cork and it comes up again. See who can give the best explanation of the striking experiment. Probably the ingenious teacher can devise tests that will be more effective in determining whether she has been successful in accomplishing the ends nature study is designed to achieve than will any standardized tests that are likely to appear for some time to come.

Equipment. Successful nature study necessitates contacts with things on the part of pupils. It is a study of nature, not a study about nature. Facilities must be arranged that will enable pupils to get these first-hand contacts. In city schools near parks, vacant lots, or other open spaces and in country schools, the time schedule should permit teachers to take pupils out-of-doors for field work in nature study. In schools in congested city districts, living material must be kept in the school building or on the school grounds. Pairs of guinea-pigs and rabbits, canaries, finches and doves in cages, aquaria with fish, insect larvæ and nymphs, pots of growing seedlings, window boxes, etc., will afford materials for observation and study. Physical nature study demands some supply of materials, some tools, and facilities for storing them and working with them. The janitor must be willing to take care of some litter. Such nature study does not call for a large outlay in apparatus. Much of it can be brought from the pupils' homes or purchased in local stores. The simpler it is the better. But some funds should be provided for the pur-

chase of the needed materials. The nature-study teacher cannot be expected to conduct her work without materials for study any more than the teacher of reading could get on without books.

It is wisest to let the teacher decide on the apparatus that she needs. The specific objectives to be accomplished in the elementary-science work can be achieved through the use of widely variant materials. Just what material a teacher will select will depend on her own preferences, abilities, and training. It is rather difficult, therefore, to prescribe a desirable lot of apparatus. If the teacher has a small fund of money to draw upon for the purchase of materials that can be obtained locally, she can probably do the work in a fairly satisfactory way the first year and then add to the equipment as she sees is advisable.

If, however, the school insists on obtaining the equipment, the following items might be suggested: First and foremost, time enough on the program so the teacher can get out with her pupils to actually study nature itself. Second, a room with cupboards for supplies and substantial tables for experimental work or at least one that can be equipped as a demonstration desk. Third, a good-natured janitor who will be willing to clean up some muss. Other items of the equipment might be cages for rabbits, guinea pigs, canaries, doves; some aquaria; insect cages; cages for turtles, snakes, etc.; self-watering window boxes; insect nets; Riker mounts in various sizes; some prepared cases of insect-life histories of the injurious and beneficial insects; simple tools like hammers, pliers, screw driver, saws, drills, a brace and bits, T-square; a supply of soft, easily worked wood in short lengths; an assortment of nails, brads, tacks, screws, screw-eyes, hooks; electric wire in several sizes, both insulated and uninsulated; dissectible motor and hand dynamo; electric sockets and small electric lights; assorted sizes of glass tubing and rubber tubing; of

corks and wide-mouthed bottles; round files for boring corks and triangular ones for cutting glass tubing; some Bunsen burners or alcohol lamps; sheet copper; sheet zinc; sheet lead and tinner's shears for cutting same; a few lenses; a prism or two; some magnets and compasses; a small supply of colored paper, of cardboard, scissors, rulers, compasses, and plasticine in several colors.

Books. While nature study is primarily a study of nature, some inspiring books are great aids, for through the eyes of an enthusiastic author, pupils and teacher alike may be led to see the significance of the commonplace things. Government and state pamphlets are available at small cost on most of the familiar, interesting animals and plants, as well as on some phases of physical nature study.

The following books would make a good nucleus for the nature-study library: "The Cornell Nature Study Leaflets," Ithaca, New York; Mrs. Comstock's *Handbook of Nature Study* (Comstock Publishing Co., Ithaca, New York); William Hamilton Gibson's *Sharp Eyes* and *Eye Spy* (Harper & Bros.); Elliot Downing, *Our Living World,* and *Our Physical World* (Longmans, Green & Co.). The last two books give an extensive classified list of additional books and pamphlets.

The Nature Magazine, 1214 Sixteenth Street, Northwest, Washington, D. C., and *School Nature Study,* published by George Philip and Son, 32 Fleet Street, London, are good magazines for nature-study teachers, enabling them to keep up to date on their subject. These two magazines are the official organs of the American Nature-Study Society and the English School Nature-Study Union, respectively. The School Nature-Study Union publishes a number of pamphlets on nature study which can be purchased from E. G. Clarke, "Craig Rossie," Stanley Avenue, Wembley. There are a number of pamphlets on nature study in this country as the publications of the Forest Service, The Bio-

logical Survey, The Bureau of Agriculture, Washington, D. C. Many of the states issue also from their biological departments or the departments of agriculture or of forestry similar pamphlets that are of value to the nature-study teacher.

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CHAPTER XI

THE SUPERVISION OF MUSIC

BY EDGAR B. GORDON

Professor of Music, University of Wisconsin

Changing teaching technique. The attempts that are being made in the field of education to provide a procedure that will make provision for individual differences and adequate freedom for the expression and development of individuality, and at the same time create in the growing child a capacity for living the group life are but indicative of a realization of the shifting needs of an industrial civilization.

This changing procedure is manifested within the classroom by such technical devices as the socialized recitation, the project method, and the so-called contract plan. These devices, together with a greatly enriched diversity of curricular opportunity, are calculated to develop every side of the child nature.

The self-expressive arts. One of the most promising developments within the enlarged curriculum, is the opportunity for training in the field of the creative and the recreative arts. It is here that an attempt is made to stimulate the child to express himself through dramatics, graphic art, design, applied art, and music. All of these subjects appeal to the feeling, imaginative and subjective side of child nature and serve as a balance for an overstress upon the acquirement of factual knowledge, intellectual discipline, practical and utilitarian objectives. Because of its universality of appeal and because of its social potency, music has taken the leading place in this development.

Within little more than a decade of time music has risen to a place of importance in the curriculum.

The music supervisor. The supervisor of music occupies a unique position in the school system. Since music is both a curricular and an extracurricular subject, the directional head of the music work is brought into contact with the entire school system and with the community, in a larger degree than almost any other member of the teaching or supervisory staff. Most school administrators recognize this relationship to be a distinct asset to the educational system and utilize it as a means of bringing school and community closer together.

It frequently happens that the resources of the music department are too often called upon for the purpose of furthering educational schemes and for attracting favorable notice to the schools. The publicity values of music are so great that community organizations are constantly calling upon the music department for assistance. Parent-teacher associations are particularly prone to look upon the music department of the schools as an inexhaustible supply of program material. A wise school administration will protect the supervisor of music from excessive demands of this character and emphasize at all times the fact that music is a part of the educational program.

Educational values of music frequently not understood. The probabilities are that much of the abuse and misuse of the musical activities may be attributed to the hazy and indefinite ideas which superintendents and principals too frequently hold as to the real educational function of music.

It is not possible to discuss within the space of a single chapter the educational philosophy underlying the teaching of the fine arts in the elementary schools.[1] Suffice it to

[1] The reader is referred to the admirable statement issued by the special committee on music found in the *Fourth Yearbook* of the Department of Superintendence, N.E.A.

say that with the broadening conception of education, a continually larger place is being allotted to the training of the appreciative powers and to social, moral, and ethical education.

> The values of life come not primarily from what one knows or does but from how he feels about what he knows and what he does. . . . His tastes, appreciations, ideals, attitudes, and mental perspectives are consequently a much better index of his true character and personality than what he knows, what he has, or what he can do. . . . Knowledge and skill help him to meet the situations of life to which they apply, but it is the developed feelings that determine the kinds of life situations he will seek to meet.[2]
>
> Taste is not only a part and an index of morality; it is the only morality. The first, and last, and closest question to any living creature is "What do you like?" Tell me what you like and I will tell you what you are.[3]

The above quotations provide a point of departure, in motive for the teaching not only of music, but of literature, applied arts and other "appreciative" subjects.

Aims of music instruction. More specifically the aims of music instruction in the schools are to provide opportunity for:

1. *Æsthetic experience.* Psychologists make a distinction between æsthetic and emotional reaction. The characteristic effect of æsthetic experience is one of exultation and a general uplift of feeling rather than a specific emotion. Earheart has said that "We do not enjoy a composition by Beethoven because it is sad or joyful, or *makes* us sad or joyful, but because it is beautiful and exalts our general state of feeling." [4]
2. *Wholesome emotional experience.* The power of music to induce moods and to express states of feeling is too well

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[2] Dr. John W. Withers, Music Supervisors' National Conference Book of Proceedings, 1916.

[3] John Ruskin.

[4] *Fourth Yearbook*, Department of Superintendence, N.E.A., p. 299. *See also* E. D. Puffer, *The Psychology of Beauty* (Houghton Mifflin Co., 1905).

known to necessitate comment here. Since the child is so essentially a "feeling" creature, music is peculiarly capable of reflecting and expressing the spirit of childhood.

3. *Social expression.* Group musical activities are especially effective in arousing group feeling and are therefore of great value in cultivating a capacity for living the group life.
4. *Avocational and vocational training.* The ability to sing and to play upon an instrument are assets of lifelong value for leisure. Many persons find, in the elementary schools, their only opportunity for the acquirement of a simple skill in music. Since music ranks fifth among the professions in the United States, music training in the elementary grades serves an important purpose as a species of prevocational or exploratory training.
5. *Ethical and moral training.* Closely allied with all of the preceding aims are the ethical and moral effects resulting from contact with fine music.

Avenues of approach. There are two general avenues of approach for the accomplishment of the foregoing objectives: Through a developing appreciation and through a skill in performance.

While in a very real sense, all music instruction should be designed to increase the child's appreciation of it, a distinct field of training has come into common usage, which seeks to enlarge the child's perspective and to provide information and aids to an intellectual form of musical enjoyment. This is accomplished through a knowledge of history, biography, and facts concerning musical form and structure.

Experience has proved that a very small percentage of children lack the capacity for participation in musical performance. While there is of course a wide variation in the degree of natural interest in music, it is but rarely that a child is found who may not be included in the performing group. This means, of course, that the teaching procedure shall be planned for the benefit of the largest possible

number of children. Furthermore, the course of study must be planned in such a manner as to provide adequate emphasis upon a growth in the appreciative power and upon the ability to participate in one way or another in the performance of music.

Statement and course of study. The following is an outline of aims and procedures for each grade as recommended by the National Research Council in Music Education to the Music Supervisors' National Conference and unanimously adopted by that body in 1921.

Music has always played an important part in the life and development of the human race. During the strenuous formative years of our national growth the times were not ripe for the significance of this fact to be fully appreciated. The invaluable service of music during the great war has brought about, in the readjustment period, a deeper nation-wide interest in the subject as a factor in the education and life of the whole people. Music is now generally recognized as a universal human need and no longer as a luxury for the few. The need for the service of more and better music can be met only through the schools. The time has come when music must be made available to every child in the entire country whether in city or rural schools.

Music has proven itself worthy to be classed as a major subject, coördinate with reading, writing, and arithmetic, and must no longer be considered an adjunct more or less superfluous and unrelated to educational processes. Therefore the music supervisors voice the demand of musicians, music teachers, musical organizations and intelligent lovers of music, as well as the progressive educators of the country, for such readjustment of the school curricula as will make possible the proper and adequate teaching and use of music as an integral part of the regular school work.

Music must be given a reasonable and fair amount of the time of the school day, not only as an art subject both beautiful and useful, but as a subject broadly educational. In a daily schedule of 300 or more minutes, music as such should be allowed not less than 15 minutes daily in primary grades, not less than 20 minutes daily in intermediate grades, and not less than the equivalent of 25 minutes daily in grammar, junior-high and high-

school grades. The time assignment is not to include the valuable functioning of music as an ally in physical culture, English, festivals, pageants, etc. In upper grades this time allotment may include one period of Glee Club practice or orchestra rehearsal. All other periods of instrumental music (piano and orchestral instruments) should be additional. . . .

The increased widespread use and enjoyment of instrumental music and the undoubted highly educative value of the subject when properly pursued make it imperative that the schools offer instrumental courses open to all children, in school time, and largely or wholly at public expense, exactly as has been done in science, physics, manual training, domestic science, etc. Systematic effort should be made to discover and encourage children possessed of special talent in any and all fields of music. . . .

The Music Supervisors' National Conference wishes to direct the attention of educators to certain standards of attainment toward which the music work in schools generally should tend. In accordance with the growing acceptance of the classification of school grades, the end of the sixth year marks the close of the primary period, the end of the sensory and associative stages of child life. The Conference recommends the following summary of music accomplishments as a standard of attainment for the end of the sixth year.

1. Every child shall have acquired the use of his singing voice and pleasure in song as a means of expression.
2. Every child shall have learned to enjoy music as something heard as well as something expressed.
3. Every child shall have acquired a repertory of songs which may be carried into the home and social life, including "America" and "The Star Spangled Banner."
4. Every child shall have developed aural powers to know by sound that which he knows by sight and vice versa. Every child shall have acquired the ability to sing at sight, using words, a unison song of hymn-tune grade; or using syllables, a two-part song of hymn-tune grade, and the easiest three-part songs; these to be in any key; to include any of the measures and rhythms in ordinary use; to contain any accidental signs and tones easily introduced; and to be in general of the grade of difficulty of folk-songs, such as the "Minstrel Boy"; also knowledge of the major and minor keys and their signatures.

5. Every child talented in musical performance shall have had opportunity for its cultivation.
6. The children shall have developed a love for the beautiful in music, and taste in choosing their songs and the music to which they listen for the enjoyment and pleasure which only good music can give.
7. The children shall have acquired the ability to appreciate the charm of design in songs sung; to give an account of the salient features of structure in a standard composition after a few hearings of it; to identify at least the three-part song form from hearing; and to recognize and give titles and composers of a reasonable number of standard vocal and instrumental compositions.
8. Above all, the children shall have arrived at the conception of music as a beautiful and fine essential in a well rounded, normal life.

COURSE OF STUDY [5]

First Year

Aims

1. To give every child the use of his singing voice and pleasure in song as a means of expression.
2. To cultivate the power of careful sensitive aural attention.
3. To provide the pupils through accompaniments to some of their songs and the hearing of much good music, an experience richer than that afforded by their own singing.
4. To give every child enjoyment of music as something heard as well as something expressed (appreciation of music).

Material

1. Rote-song books in the hands of the teacher.
2. A keyboard instrument for playing accompaniments.
3. A pitch pipe; also a staff liner if the teacher so wishes.
4. A phonograph with at least twenty records of good music.

[5] At a meeting of the National Research Council of Music Education in Chicago, April, 1928, it was decided to make certain revisions in this course of study in line with the experiences of the past five years. It is the feeling that in some instances the amount of work to be covered is too great.

Procedure

1. Singing songs by rote, using light head tones ordinarily not exceeding the range of the treble staff.
2. Imitative exercises for curing so-called monotones.
3. Singing songs entire, or phrase by phrase, individually (to include all members of the class).
4. Occasional use of accompaniments on well learned rote-songs.
5. Directing aural attention to beauty of tone in singing and to simple aspects of music as observed in rote-songs and in music heard, such as repetitions and recurrence of phrases, and repeated rhythms.
6. The teaching of syllables as desired.

Attainments

1. Ability to sing pleasingly a repertory of thirty to forty rote-songs appropriate to the grade, including one stanza of "America."
2. The reduction of the number of "monotones" to 10 per cent or less of the total number of pupils.
3. Ability of 90 per cent of the pupils to sing individually, freely, correctly, and without harmful vocal habits, some five of the songs sung by the class as a whole.
4. Preference on the part of the children for good tones rather than the bad *and the disposition to love the best of the music they have sung or heard.*

SECOND YEAR

Aims

1. The aims of the *first year* again, namely: continued curing of "monotones" (to give every child the use of his singing voice); development of song singing; enrichment and extension of song repertory; further development of aural power; further development of appreciation, including pleasurable attention to the expressive features of a song and the beauties of musical structure.
2. To continue the development of the power to recognize aurally simple phrase groups of tones and the feeling for simplest rhythms. The introduction of the staff may occur as early as the middle of the first year or as late as the

beginning of the third year depending upon the order of procedure.

Material

1. Rote-song books in the hands of the teacher.
2. Books containing easy rote-songs (some of which may be in minor keys) and the simplest melodies in the usual nine major keys to be used in the development of sight singing, if begun; the latter group, at least, to be printed in large type and open distribution on the page; and both groups to be in books that are placed in the hands of the children.
3. Some large display form of material that is to be studied; either in some chart form or on blackboard.
4. A pitch pipe and a staff liner.
5. A keyboard instrument for playing accompaniments.
6. A phonograph and some twenty-five records of good music.

Procedure

1. Singing rote-songs for pleasurable musical experience.
2. Imitative exercises for curing so-called "monotones."
3. The use of the staff in practicing or preparing for sight singing.
4. Frequent practice in individual singing.
5. Ear training for the development of tonal and rhythmic thinking.
6. Occasional use of accompaniments to songs previously learned.
7. Learning to listen to good compositions for the sheer joy and charm of their beauty. Also to listen to the salient features of the imitative or descriptive phrases involved; and to the simple arrangement of recurring phrases or "tunes" and rhythmic patterns.

Attainments

1. Ability to sing correctly and pleasingly forty to sixty new songs, twenty of which are to be memorized and which shall include two stanzas of "America." It is also suggested that some of the songs of the first year be kept in repertory.

2. Ability of 90 per cent of the pupils to sing individually, freely, correctly, and without harmful vocal habits six or eight of the songs sung by the class as a whole.
3. Not more than 5 per cent of the class to be "monotones" at end of year. The other pupils to sing without bad vocal habits, with musical enjoyment, and with good musical effect.
4. Ability by end of year (or by the middle of the following year, according to procedure) to sing at sight, with syllables, easy melodies in the usual nine major keys, containing notes and rests one, two, three, and four beats in length, and employing diatonic tones in stepwise progressions and with simple skips.
5. Ability to recognize some five or six good compositions on hearing the first few measures of each; to follow and recognize a recurrent theme in a new song or new piece of very simple structure; and a tendency to prefer compositions that have real musical merit and charm to those that are weak or common.

Third Year

Aims

1. Continued correction of "monotones"; development of free and beautiful singing of songs; development of the song repertory along lines appropriate to the taste and expanding powers of the children; development of aural power and extension of it to new features; further development of appreciation, particularly in the direction of pleasurable attention to the expressive and structural beauties of music.
2. Development of an elementary degree of power and skill in independent sight singing.

Material

1. Books of music in the hands of the pupils; these books to contain three types of musical material, namely:
   (*a*) Rote-songs of appropriate interest and elaborateness.
   (*b*) Songs that may be taught partially by rote and partially by reading.
   (*c*) Easier material for sight singing.
   (All of this material, with the possible exception of

the first group, should be printed in large type and open distribution on the page.)

2. Blank music paper or music writing books ruled with a wide staff, in the hands of the pupils.
3. A keyboard instrument.
4. A pitch pipe and staff liner.
5. A phonograph and twenty-five good records.

Procedure

1. Singing rote-songs for pleasurable musical experience.
2. Systematic practice in sight singing.
3. Ear training for the development of tonal and rhythmic thinking.
4. Individual song singing and sight singing: each child to sing individually at least once a week.
5. Liberal use of a keyboard instrument for illustrative purposes and accompaniments, but not for leading.
6. Listening to good musical compositions as largely unanalyzed musical experience; observation or analysis to be largely in connection with the songs sung, but also in some degree with the larger compositions heard; and to consist of features of structure or design, such as observing recurrences of themes, sequences, and variations on them, etc.; and to be pursued in the spirit of recognizing the beauty and charm of such features of musical design.

Attainments

1. Ability to sing correctly and pleasingly forty to sixty new songs, at least ten of which shall be memorized, and which shall include the four stanzas of "America." It is also suggested that some of the songs of the preceding years be kept in repertory.
2. Ability of 90 per cent of the pupils to sing individually, freely, correctly, and without harmful vocal habits, eight or ten of the songs sung by the class as a whole.
3. The "monotone" to be practically eliminated. Individual attention should be given to special cases.
4. Ability by end of year to sing at sight, by syllables, easy melodies in any of the usual nine major keys; these melodies containing stepwise progressions, and skips of thirds, fourths, fifths, sixths, and eighths, and employing at least

notes and rests one, two, three, or four beats in length, and two notes to the beat; also knowledge of some twelve of the more familiar signs and terms used in connection with staff notation.

5. Ability of at least 25 per cent of the pupils to sing as well, individually, at sight as the class can sing as a whole.
6. Power that enables the pupils to recognize by sound that which they know by sight, and vice versa; that is, "See with the ears and hear with the eyes."
7. Increased power to attend to, and give account of, the salient points of design in the music introduced, and increased sympathy for, and pleasure in, those factors that make for charm of musical design and expressive quality; also, ability to recognize and identify some eight or ten standard musical compositions when the first few measures are played.

Fourth Year

Aims

I. Almost all the general aims appropriate and desirable in both early and later years in a system of instruction in music have now been assembled. Once more they may be summarized:
   1. To develop pleasure in song as a means of expression.
   2. To secure free and correct use of the voice in singing.
   3. To develop musical qualities of performance of songs.
   4. To develop a conception of music as something to be heard as well as something to be expressed.
   5. Progressive development of power to use the printed language of music.
   6. Progressive extension of musical experience beyond that provided by the singing of the children.
   7. Continuous development of power of appreciation by development of attention to the elements of the beautiful in music.

II. Specific aims of the fourth year:
   1. Introductory steps in two-part singing.
   2. Extension of knowledge of the tonal and rhythmic material of music appropriate to the fourth year.

Material

1. Books of music in the hands of the pupils, these books to contain a very large number of songs of high musical merit, a few of the more elaborate of which may be learned by rote.
2. Blank music paper or music-writing books, in the hands of the pupils.
3. A keyboard instrument, pitch pipe and staff liner.
4. A phonograph and at least twenty-five good records.

Procedure

1. Singing repertory songs for pleasurable musical expression.
2. Individual singing to be employed as a means of strengthening individual capability.
3. Ear training for the further development of tonal and rhythmic thinking involving both old and new problems.
4. The introduction of two-part singing to be by "chording" in two parts on sustained tones, at intervals chiefly of the third or sixth, or by sounds; both first and second parts to contain both boys and girls, the voices of all to be treated as equal.
5. Liberal use of a keyboard instrument in accompaniments and for purposes of explanation and illustration, but not for leading unfamiliar music.
6. Observing the structure of songs sung, and listening to and giving account of salient points in the structure of standard musical compositions, with a view to developing an appreciation of the beauties of tonal design.

Attainments

1. Continued development of song singing and extension of repertory; this to include the first stanza of "The Star Spangled Banner."
2. Ability of 90 per cent of the pupils to sing individually, freely, correctly, and without harmful vocal habits not less than ten of the songs sung by the class as a whole.
3. Power and skill to sing at sight music appropriate to this year.
4. Ability of at least 30 per cent of the pupils to sing individ-

ually at sight the material which the class can read as a whole.

5. Power that enables the pupils to know by sound that which they know by sight, and vice versa.
6. Increased capacity to observe the characteristic features of songs sung and music heard, such as recurrence of themes, salient features of interest, and expressive quality; these characteristics to be mentioned in so far as they strike the attention because of the pleasure they give the hearer. Also, ability to recognize, and write the names of some twenty standard compositions from hearing the first few measures of each.

Fifth Year

Aims

I. General:
   1. To continue development of free and beautiful singing of songs.
   2. To acquire an increasingly wide musical experience.
   3. To develop increasing power of eye and ear in correlation.
   4. To develop power to listen for musical beauty as well as for musical knowledge.
   5. To develop increased power to sing at sight.

II. Special:
   1. To establish two-part singing.
   2. To develop increasing practical knowledge of the tones of the chromatic scale and power to use them.
   3. Extension of knowledge of the tonal and rhythmic material of music appropriate to fifth year.
   4. To develop a fair degree of power to sing unison songs at sight with words, and an elementary degree of power to sing two-part songs at sight with words.

Material

1. Books of music in the hands of the pupils, these to contain unison and two-part songs for treble voices.
2. Blank music-writing paper or music-writing books in the hands of the pupils.

3. A keyboard instrument, pitch pipe and staff liner.
4. Phonograph and a library of records of good music.

Procedure

1. Singing of songs for pleasurable musical expression, some of which should be retained in the permanent repertory.
2. Individual singing to be employed as a means of confirming and establishing individual capability.
3. Ear training for the further development of tonal and rhythmic thinking involving both old and new problems.
4. In two-part singing, the pupils to be divided indiscriminately as to sex, both girls' and boys' voices being treated as equal. (An occasional irregular voice may need to be treated as an exception.) Assignments of vocal parts to groups to be reversed from song to song or from week to week, to give proper practice to the full vocal range of each pupil, and to develop in each individual independence in singing each of the lower parts; the alto to be taken up first on new songs that require practice on the parts separately; and to be sung with a lightness of voice and movement characteristic of soprano. Systematic effort to be made to develop sight singing of two parts simultaneously.
5. Systematic attention to be given to singing words at sight, when the songs contain nothing but quite familiar technical features.
6. Liberal use of a keyboard instrument for accompaniments and many purposes of illustration and explanation.
7. Observation and analysis of salient features of design in music sung and in standard musical compositions heard; such as persistent reiteration of the motive, recurrence of themes, sequential treatment, and imaginative changes (as in "Morning Mood" or "Asa's Death" from Grieg's *Peer Gynt Suite*), or the divisions of the song forms (as in songs sung or in the "Pilgrim's Chorus" from *Tannhauser*).

Attainments

1. Continued development of song singing and extension of repertory; this to include the remaining stanzas of "The Star Spangled Banner."
2. Ability of 90 per cent of the pupils to sing individually,

freely, correctly, and without harmful vocal habits not less than ten of the songs sung by the class as a whole.
3. Power and skill to sing at sight music appropriate to this year.
4. Ability of at least 30 per cent of the class to sing individually at sight the material which the class can sing as a whole.
5. Power that enables the pupils to know by sound that which they know by sight, and vice versa.
6. Increased capacity to observe the characteristic features of songs sung and music heard, such as recurrences of themes, salient features of interest, and expressive quality; these characteristics to be mentioned in so far as they strike the attention because of the pleasure they give the hearer. Also, ability to recognize and write the names of some twenty standard compositions from hearing the first few measures of each.

Sixth Year

Aims

I. General:
   1. General aims the same as the fifth year.

II. Special:
   1. The special aims of fifth year continued and extended.
   2. To begin the development of three-part, treble voice singing.
   3. To develop ability to deal practically with the minor mode.

Material

1. Books of music in the hands of the pupils; these to contain unison and two-part treble voice material; and also some material for three parts, treble voices and some more elaborate unison songs.
2. Blank music paper or music-writing books in the hands of the pupils.
3. A keyboard instrument, a pitch pipe, and staff liner.
4. A phonograph and library of records of good music.

Procedure

1. Singing of songs for pleasurable musical expression, some of which should be retained in the permanent repertory.
2. Individual singing to be employed as a means of confirming and establishing individual capability.
3. Ear training for the further development of total and rhythmic thinking involving both old and new problems.
4. Division into two or three-voice parts to be without regard to sex, each part containing some boys and girls. Assignments of children to vocal parts to be shifted from song to song or from week to week as voices permit.
5. Practice in the use of accidentals and their restoring signs, and in building scales.
6. Three-part singing introduced, through the development of the harmonic sense, using triads if desired.
7. Systematic attention to be given to singing words at sight when the songs contain nothing but quite familiar technical features.
8. Two-part and three-part songs to be undertaken at the outset with all parts simultaneously, when practicable.
9. Liberal use of a keyboard instrument for accompaniments and many purposes of illustration and explanation.
10. Observation of the elements of interest and charm of music sung and heard to be directed to design and imaginative treatment of thematic material, as manifest in motivation, repetitions, recurrences, unity and contrast, of part with part (as in the song forms or rondo), etc.

Attainments

1. Ability to sing well, with enjoyment, at least thirty unison two-part, and three-part songs, some of which shall be memorized.
2. Ability of 90 per cent of the pupils to sing individually, freely, correctly, and without harmful vocal habits not less than ten of the songs sung by the class as a whole.
3. Ability to sing at sight, using words, a unison song of hymn-tune grade; or using syllables, a two-part song of hymn-tune grade, and the easiest three-part songs; these to be in any key; to include any of the measures and rhythms in ordinary use; to contain any accidental signs and tones easily introduced; and in general to be of the

grade of folk songs such as "The Minstrel Boy," also knowledge of the major and minor keys and their signatures.

4. Ability of at least 30 per cent of the pupils to sing, individually at sight, music sung by the class as a whole.
5. Ability to appreciate the charm of design in songs sung; to give an account of the salient features of structure in a standard composition after a few hearings of it; to identify at least three-part song form from hearing; to recognize and to give titles and composers of not less than twenty standard compositions studied during the year.

Analysis of course. An analysis of the foregoing course of study reveals a progressive development of the capacity for self-expression through song, a gradual familiarity with music of the child world and musical masterpieces within the understanding of the child, and a growing skill in performance, founded upon theoretical knowledge and sight-singing opportunity.

Æsthetic considerations take precedence over theoretical and mechanical routine at all times, therefore of primary concern is the development of a beautiful singing tone. Unless handicapped by some physical defect most children have sweet singing voices. The teacher of music is careful to preserve this light quality of tone and seeks by training to produce a perfect intonation and to develop correct singing habits. Such habits come as the result of a growing consciousness of the importance of tone placement, proper position of the mouth and tongue for the production of vowel sounds, a distinct articulation of the consonants, and upon an adequate support of the breath by the diaphragm. The achievement of these ends may be accomplished by careful and continued singing of much song material. The probabilities are, however, that greater results will be attained if some definite drill in tone production is gradually introduced into the music lesson. This would be but an extension of the already prevalent custom of singing with

neutral syllables. For example, the neutral syllable "loo" is employed for the purpose of securing a light head quality of tone. The employment of the other vowel sounds in a similar manner will accomplish much in the development of beautiful singing.

Text material. For a long time a controversy waged between the advocates of what is known as the scale method and those believing in the song method. In the former, skill in sight reading vocal music is approached from a practice of the scale and by means of exercises, while in the latter, reading skill is developed from song material.

At the present time there is a practical unanimity of opinion in favor of the song approach, although the use of specially devised exercises is regarded as essential. Since sight reading is a skill, there is no short cut to its acquirement. Repetition upon repetition of the same succession of tones is essential before the visual and auditory imagery is made definite. Indeed, a sight-singing skill cannot be said to have been accomplished until the usual and ordinary tone progressions are comprehended at a glance. The commonest fault to be met within the technical training in public-school music is the failure to provide sufficient sight-singing opportunity to make accurate and permanent the reading skill.

To this end, therefore, an abundance of sight-reading material is essential. In addition to the adopted text sufficient supplementary material must be supplied to develop real skill.

Instrumental training. Experience has shown the great value of instrumental training as a phase of school music work. Although of but recent development the progress which has been made promises to put it on a plane of equal importance with vocal music. In many schools, however, the instrumental training is not on a sound educational basis, schools being content with orchestras com-

posed of children who receive their training from private instructors outside of school. Such orchestras usually have instrumentations of a more or less nondescript character permitting children who play upon instruments that have no legitimate place in an orchestral combination to come into the group. An orchestra composed of two or three violins, several saxophones, a cornet or two, a couple or more drums, and a piano has no musical possibilities, and can reflect nothing but discredit upon the school in which it is found.

The only plan that has educational justification is that of establishing in the fifth and sixth grades, training classes for the various instruments of the orchestra and band. The teaching of these instruments by the class method has been found to be entirely practicable, in fact preferable to the individual type of instruction.

Instruction of this character begun in the middle grades insures a body of competent players for a junior high-school orchestra and band.

In some school systems the mistake is made of limiting class instruction to the violin. This is a short-sighted policy because a real orchestra depends upon having a complete instrumentation. Viola, cello, and string bass players are as essential to the string choir as are those of the violin. The wood-wind section must not be represented solely by the clarinet, but must have flute, oboe, and bassoon to complete the combination. While it might be deemed inadvisable to start children of the fifth and sixth grades upon the oboe and bassoon, players for these instruments eventually must be found. It is a common practice to transfer from the clarinet children who have shown particular aptitude for that instrument, to the more difficult instruments of the reed family. A similar plan may be employed in the brass section where some of the surplus cornet players may be transferred to the horn parts.

It is advisable to use a selective process in determining who shall become members of the instrumental classes. Ear tests and physical adaptability are factors to be considered. It is almost hopeless for a child with a dull sense of pitch perception to succeed upon any of the instruments of the string family. It is almost as impossible for a boy having thick lips to be successful upon the trumpet or French horn.

Toy orchestra. As a stimulus to interest in instrumental music and as a means of developing a rhythmic sense, simple instruments of the percussion type have a recognized value for young children. Such instruments as the triangle, toy drum, toy trumpet, castanets, sandpaper blocks, tambourine, xylophone, bells, cuckoo, nightingale, and other primitive tone-producing instruments are used as an accompaniment to simple rhythmical compositions played upon the piano or phonograph.

Piano-class instruction. The latest development in instrumental school music is that of teaching the piano by means of the class method. Already significant results have been obtained and the movement promises much as a means of stimulating music in the home.

Correlating values of music. Music, more than any other subject in the curriculum serves as a correlating device for school activities. Every school festival and special-day program is dependent upon music for its success. The opportunity afforded by an approaching holiday, such as Christmas, for a school to coöperate in the creation of a beautiful and worthy celebration is a project that pays large dividends in the way of school spirit and esprit de corps.

Equipment. The materials essential for effective work in elementary-school music are:

1. Well tuned pianos in sufficient numbers so that all grades may have frequent opportunities of singing with piano accompaniment.

2. Good portable phonographs, properly regulated as to speed, and in sufficient numbers that children may have almost daily opportunity of hearing records.
3. Library of phonograph records, properly catalogued and containing a representative collection of the standard compositions which all children should know; also records of special children's material containing characteristic rhythms, rote-songs, etc.
4. Music readers of adopted text, in sufficient numbers to provide one for each child.
5. Supplementary song material of two or more kinds to provide ample sight-singing opportunity.
6. Class instrumental instruction material in sufficient quantities to supply each child taking this work.
7. Simple, intermediate, and advanced material for orchestra, band, and ensemble groups.
8. Instruments of the band and orchestra such as violas, cellos, basses, oboes, bassoons, melophones, French horns, tubas, and drums. (The preceding list does not include violins, clarinets, flutes, and trombones which are frequently owned by children. Many school systems, however, own a supply of these instruments also in order that children unable to purchase instruments may be supplied.)
9. Toy instruments such as those described in a previous paragraph.
10. Portable music stands in sufficient quantities for band and orchestra.
11. Staff liners and pitch pipes for every room.

The music teacher. The qualities essential for success in other fields of teaching are, of course, necessary for the music teacher. It would seem, however, that the factor of personality counts to a larger degree in the teacher of music than in the teacher of most subjects. Dealing, as a music teacher does, with the spiritual entity of the child she must be possessed of a personality that is both attractive and dynamic. She should also possess an excellent background of educational and musical training, have organizing ability and above all, a broad conception of the

aims and objectives of school music. She must be socially minded and in no sense be interested in art solely for art's sake, but rather in art for what it can contribute to the common life. The underlying philosophy of the teacher of school music cannot better be expressed than in those words of Tolstoi, who, in a letter to Romain Rolland, said, "The precondition of every true (artistic) calling, is not love for art but love for mankind. That alone is of value, which binds men together. Those only who love their fellow creatures can hope, as artists, to do anything worth doing."

Tests and measurements. The tests and measurements that have been devised in music are either for the determination of talent or for attainment. The best known tests are those developed by Seashore and represent a truly scientific attempt to measure musical talent. The amount of time necessary to give these tests, however, almost precludes their use on a large scale in a school system. They may be used, however, for diagnostic purposes in cases of retarded development and for the study of musical precocity.

The attainment tests of Beach, Torgersen-Fahnstock, Kwalwasser, and others are all valuable in checking up teaching results.

A special committee of the National Research Council of Music Education has been making a study of musical tests and measurements and in a report submitted to the sectional meetings of the Music Supervisors' National Conference for the year 1927, gave but tentative endorsement of them.

The unmeasurable results of music teaching are after all of the greatest importance and in the field of the emotions and imagination little or no progress has been made in the way of devising tests and measurements. No one has yet attempted to determine the æsthetic effect upon

an individual of a beautiful sunset or of a Beethoven symphony, and yet we are perfectly confident that there are varying degrees of sensitivity to such stimuli.

Until ways and means have been found for measuring the subjective results of music teaching it is quite probable that we shall have to be content with the less important objective measurements. Those evidences of reaction that are manifested by changes in character and attitude toward life which result from a contact with beautiful music, we cannot measure, but gladly accept as a reality.

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CHAPTER XII

THE SUPERVISION OF ART

BY FLORENCE WILLIAMS

Formerly Instructor in Art, University of Chicago

The aims and objectives of modern art education. For the superintendents, principals, general supervisors, and others who seek an understanding of the aims and objectives in art education, let us suggest that they try to think of the subject in the same terms and on a basis comparable with academic subjects. The fact that art is a so-called special subject often serves to set it aside in our thinking as a subject that deals only with special talents and abilities and has nothing to do with the practical utilitarian values derived from the other school subjects. How can we justify the expenditure of time and money devoted to the teaching of art? How does it function in the life of the average individual? The general educator is quite justified in asking how this special subject can contribute to the well-being, happiness, and efficiency of the children who have no special talents or aptitude for art. Parents who consider art an unnecessary part of their children's education sometimes demand, "What good will it do my John to waste all that time drawing and painting? He ain't goin' to be no artist." And true enough John will not become an artist nor is it at all desirable that any but a very small per cent of the children in our schools should become artists. Neither do we expect them all to become authors because they study composition and literature, or historians because they study history, or expert accountants

because they study arithmetic. It is a generally accepted fact that such academic subjects as English, arithmetic, and history play a part in the life of the average individual, that they are necessary tools to the well educated and efficient citizen. In exactly the same way, though not so obvious to the layman, a knowledge and appreciation of art is of practical value to the individual and can function as effectively in his life as a knowledge of academic subjects.

Art in our daily lives. Let us analyze some of the activities of the business man and of the housewife to see in what manner art touches their lives. The hardware merchant or grocer may suppose that he has nothing to do with art, yet many of his business problems can be more advantageously solved with an understanding and appreciation of art principles. He wishes to arrange his shop windows effectively and attractively. His showcases and counters should be pleasing to his customers. The sign that hangs in front of his shop must attract favorable attention. When he decorates his store for Christmas or other holidays he desires to make it as attractive as possible. In all these matters a knowledge and understanding of art can help him to solve these problems satisfactorily. He may not recognize them as art problems but wherever the need for order and beauty present themselves, it requires a knowledge and understanding of art.

The housewife likewise has many needs for art in the pursuit of homemaking. She wishes to select attractive furnishings for her home and to arrange them in the most pleasing fashion for the comfort and pleasure of her friends and family. Literally hundreds of questions in which art is a factor will present themselves to her. What color will she make the walls? What kind of furniture will she buy? What type of curtains will she choose? Where will she place each article of furniture? What decorations will she use? What clothing to select for herself and family,

involve many more art questions. Although she may not recognize them as such, the housewife is constantly confronted with art problems.

It is the same in the life of every individual no matter what the occupation. Art problems are bound to occur in the course of everyday life. They may be large or small, perhaps the selection of a greeting card at Christmas, or the purchase of a new house. We need to recognize these as art problems and to realize that a definite study of art principles can help to solve them. Then it is obvious that art has its utilitarian values.

In our effort to emphasize the need of art knowledge as a tool for everyday living we must not neglect to emphasize art as a source of enjoyment and personal satisfaction to the individual. Every child is entitled to the kind of art training which enables him to better interpret and enjoy the world in which he lives. He has a right to the kind of enjoyment which comes to him through the understanding and appreciation of the truly beautiful in visual art. It is our duty to so train the child that he can fully realize and enjoy the artistic heritage of the race. The ability to recognize and enjoy beauty in a good picture, to find pleasure in beauty of color, line, and proportion in a house, and the ability to see beauty in nature are as important to the complete happiness of the individual as the ability to make his living. Indeed they may bring him much more of genuine enjoyment. To sum it up in a single sentence, the most important aim in art education is to give the child the ability to recognize and enjoy beauty in all phases of visual art.

Summary of objectives in art education. In concluding our discussion of aims we will find it helpful to quote from William G. Whitford.

> The objectives in art education have frequently changed during its brief sojourn in the curriculum. Emphasis has been placed

from time to time upon the vocational objectives, upon art for art's sake, upon the commercial arts, the history of art, and the practical arts. We have heard of art for industry, culture, pure æsthetics, and art for everyday life. A brief summary of art education emphasizes the fact that art instruction in the past has not been based upon the needs of the majority of pupils in the school system, but upon the needs of the few. Furthermore, there has been no agreement in regard to these needs. In recent years we have come to the realization that the objectives of art education should be divided into several groups to adequately meet the demands of this subject in the school and in life outside the school.

At the present time the trend of art education manifests itself in the establishment of two separate and distinct groups of instruction: (1) Adequate art training for all pupils in the school no matter what their future profession may be, and (2) Adequate training for the special talent pupil who wishes to specialize in art.[1]

The above statement clearly sets forth the controlling idea in the aim of art education. At the elementary school level where we are agreed that education should be foundational in character, it is important that we provide a kind of art training that is suitable to the many. Every problem and project in the art course of study should be tested according to the following standards: First, what value is this problem in the present development of the child? Second, of what value will it be to him as a citizen, in his home and in his daily activities? Checked up against these two short but meaningful sentences many art courses of study fall short. The art-school tradition still persists in much of our public-school art, and courses of study are frequently loaded with problems better suited to the training of the professional artist than the average citizen.

The aims of art education can be thought of in one sense as purely cultural, yet in another sense, art has a strictly

[1] "Report of the Committee on Elementary School Art," The Federated Council on Art Education, Brief Historical Sketch by William G. Whitford, pp. 29-30.

utilitarian value. The same ability that enables the individual to enjoy beauty also enables him to make practical adjustments in his environment. Stated briefly the general objectives in art education are as follows:

1. An appreciation of beauty as it occurs in visual form which enables the individual to experience a richer spiritual and intellectual life.

2. Ability as a consumer to make wise selections according to the standards of good taste in any purchase where line, form, and color are a consideration.

3. Skill in combining and arranging furniture, rugs, or articles of clothing to produce artistic effects.

The course of study in the elementary school. How are the aims of art education to be accomplished in the elementary school? When the activities of the average adult are analyzed we find that very seldom does he have need for drawing, painting, and designing. How, then, can we justify these activities as a part of the art work in the elementary school? To be sure the children enjoy the mere manipulation of materials and the carrying out of an idea in a concrete form. But judged by the criterion of social worth has technical work a place in the course of study? Will experience in drawing, painting, and designing help to lay the foundation of genuine appreciation and good taste? A quotation [2] here from *The Teaching of Industrial Arts* is to the point:

> The active impulse for drawing and expression through various phases of construction in the nursery and playroom seems thus to be the simple germ from which there develops a natural æsthetic sense. Combined with the active motor tendency is a strong imitative impulse which leads the children to appreciate whatever art suggestion the environment may supply. In pencil sketching and color work, in making playthings, boats, and

[2] Oscar L. McMurry, George W. Eggers, and Charles A. McMurry, *The Teaching of Industrial Arts* (The Macmillan Co., 1924), pp. 21-22.

dresses, in constructing doll furniture, in childish theatricals and impersonations, the spontaneous activities of the children are the means of expressing and defining their æsthetic impulses. The impulse for sketching so common in children has long been recognized as a doorway to the fine arts and some have thought that æsthetic appreciation could scarcely be cultivated apart from training in drawing. But there are many channels through which this combined motor and æsthetic impulse develops. If the above interpretation of child activities is correct, we may conclude that the early crude instinct for what is pleasing and graceful first appears in company with the strong impulse for action in imitative and constructive efforts. The varied forms of motor expression cause these growing æsthetic feelings to root themselves in everyday experience.

As the authors have pointed out, the beginnings of æsthetic appreciation are closely associated with the motor impulse to draw, paint, and construct. Moreover, whether we give them the opportunity in art courses or not, children are bound to express themselves in drawing and construction. Let us seize the opportunity to turn this natural impulse to good account.

Having justified technical work as a legitimate part of the course of study, we will now consider the different divisions of subject matter which may well find a place in the course of study. For purposes of discussion we will divide the subject matter into six parts as follows:

1. Illustration, representative drawing, and illustrative construction work
2. Design and crafts
3. Picture study
4. Lettering, poster making, and commercial art
5. Color study
6. Interior decoration and clothing design

The experienced art teacher will say, "But those topics overlap. We teach illustration and poster work at the same time," or "We take up lettering and design to-

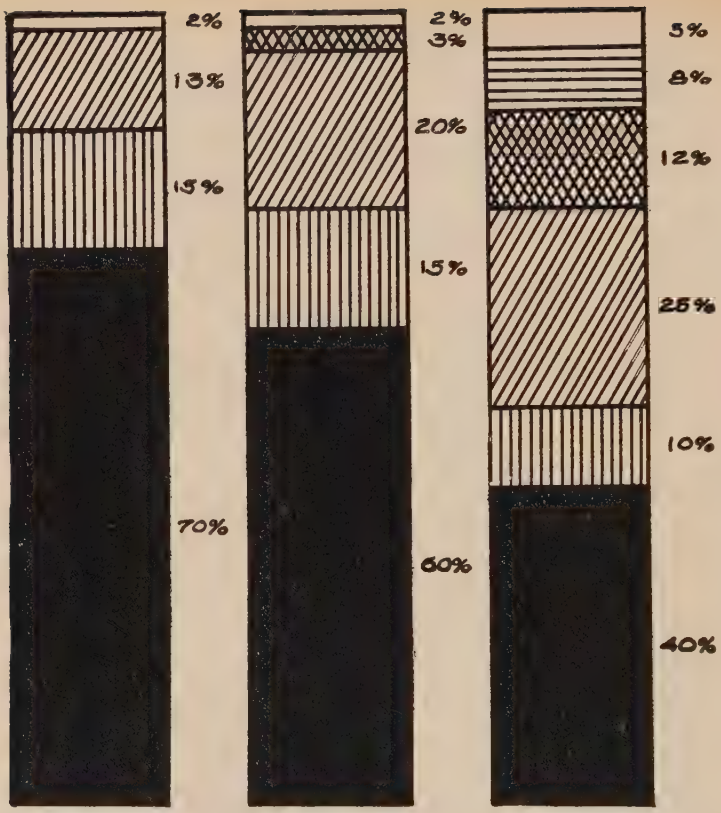

CHART SHOWING AMOUNT OF TIME THAT SHOULD BE DEVOTED TO EACH PHASE OF SUBJECT MATTER AT DIFFERENT GRADE LEVELS

gether." It is impossible to make a hard and fast classification where the different divisions of subject matter do not overlap, but for purposes of making the course of study we must make as clear a classification as possible and use it for a framework upon which to build. One of the first problems to be solved is the relative amounts of time that different phases of subject matter should receive. During the past five years the writer has collected and tabulated the opinions of experienced teachers and supervisors as to the amount of time that should be devoted to each phase of subject matter at different grade levels. The results are graphically shown in the chart. In the kindergarten and first grade 70 per cent of the time given to art is devoted to illustrations and representative work, in the second and third grades the time for illustration is decreased to 60 per cent, and in the upper grades it is decreased to 40 per cent. The amount of time devoted to picture study remains fairly constant in all grades though there is a decrease of 5 per cent in the upper grades. The amount of time given to design and crafts steadily increases until in the upper grades 25 per cent of the art time is given over to this phase of subject matter. Color is given a very small portion of the time at all grade levels. Lest this should be misunderstood, it will be well to explain here that color was interpreted to mean only a formal study of color theory, and not its use in illustration and design. Lettering and poster work receive but 3 per cent of the time, beginning in the second and third grades, increasing to 12 per cent at the upper grade level. This is somewhat astonishing in view of the fact that in common practice 50 per cent of the time is often devoted to poster making. Interior decoration and clothing design receive 8 per cent of the time and frequently the qualification was made that this should be in the sixth grade only. It is to be understood that this study of interior decoration and clothing design

does not include dressing paper dolls and furnishing doll houses as carried out in lower grades. These projects are in reality illustrative work rather than a formal study of æsthetic quality in home and dress.

We may assume that the amount of time devoted to the teaching of different topics in art indicates in some degree the amount of emphasis placed upon these topics at different grade levels. Many readers will disagree with the above distribution of time and in actual practice more time is often given to illustration in the upper grades. Whatever the division of time it should be considered as one of the problems in planning the course of study rather than left to chance. The approximate amount of time that should be given to each topic at each grade level is one starting point for building a good course of study.

Interests and capacities at different grade levels. Another starting point in building the course of study is to determine the art interests and capacities of the children at each grade level. This will help to serve as a guide in selecting and organizing the various problems and projects.

Kindergarten and Grade I

1. Little children demand quick returns. They want immediate results. If a project lasts too many days there is a corresponding loss of interest and spontaneity.
2. They are satisfied with crude results, and it is useless to try and inspire them with a desire for perfection. Relative proportions of objects do not matter. Their imaginations are such that they clothe their own drawings and construction work with a reality not visible to others.
3. They are likely to enjoy bright and gaudy colors. It is apparently impossible to force an appreciation of dull, soft, subtle color quality at this age.
4. They enjoy mere contact with materials. They like to play with it in experimental fashion until they have become acquainted with its properties.
5. Too elaborate or too difficult mediums of expression may

hinder the imagination. (This is contrary to the theory advanced by many art educators.) Wood, hammer, saw, and nails are difficult for little children to manipulate and carry out their ideas. One little first-grade boy who was busily pounding was asked what he was making. "I am just pounding," he said.

6. Little children like to represent their present and past experiences in drawing and on the sand table. Activities in the home, the corner grocery store, and the playground are suggestive of the things which they choose to represent when left to themselves.
7. They like to represent imaginary scenes from the stories that they know.
8. Pictures of a story-telling quality and things that they know have the most appeal. Landscape and religious pictures are generally not favorites with little children. Contrary to the popular belief, they generally like pictures of adults better than pictures of children.

Grades II and III

1. Interests at this grade are substantially the same though broader experience has increased their variety.
2. Immediate results are not so necessary. Interest will hold for a somewhat longer period than in the lower grades but even here it is comparatively short.
3. Some interest in improving the life-like quality of their drawings is observed. There is willingness to practice for a very short time in order to secure better results.
4. They have the capacity to make very simple plans before beginning a project.

Grades IV and V

1. Considerably increased willingness to make preliminary plans are manifested.
2. More interest in how to do things and how to get good results is shown. The ability to criticize often exceeds the ability to create and this is likely to discourage the child from further effort. He needs help to avoid loss of confidence at this period.
3. The things that he makes must have a more practical appeal than at the lower grade levels. They must have value in his

own eyes at least. He is no longer satisfied with the mere manipulation of materials.

4. Children at this grade level generally find considerable pleasure in conventionalizing naturalistic forms and can learn the difference between the naturalistic and the conventionalized.
5. Considerably increased ability to see and portray proportions truthfully is noted.

Grade VI

1. A wider interest in community affairs due to their wider experience with the world, and interest in community art—statues, art galleries, and beautiful parks—can be utilized.
2. A distinct interest in æsthetic quality, a desire to *know why* some things are beautiful and other things are ugly. An ability to see art quality in terms of the principles of design is developed at this age.
3. An interest and appreciation in landscape and portrait is revealed.
4. The practical has a strong appeal. Children at this grade level have keen interest in designing and decorating articles which to them have a practical value.
5. They show some interest in learning how to represent objects in perspective views.

These interests and capacities of the children at different grade levels form another starting point in formulating the course of study. They can well be used as criteria against which to judge the proposed projects for the art class.

Methods of teaching. *The teaching of illustration.* In order to observe and criticize a lesson in illustration intelligently the principal or general supervisor must understand the organization of a unit of work in illustration. There are important steps in carrying out a unit in illustration and the following paragraphs will tell the observer what to look for when watching any lesson in illustration. The first item to observe is whether the children have a definite aim for that particular lesson or whether they are just "drawing pictures." The teacher, of course, will

have a definite aim for every lesson. The children should be consciously aware of each step as the unit of work progresses. The second important item to observe is the skill with which the particular type of lesson is managed. Each step in the development of a unit of work in illustration calls for a different type of lesson.

In selecting the theme, the interests of the children will of course control the selection of the subject for illustration but it is not to be supposed that the teacher need sit with folded hands until the children propose a theme of their own accord. Neither should the teacher begin the unit of work by saying, "Now, children, to-day we will begin our Indian pictures." There are many ways in which the teacher can "set the situation" so that the children will be stimulated to propose topics for illustration. Conversation, excursions, and pictures put up on the bulletin board may arouse their interest. At all events *the children must have a share in the selection* of the theme. They must wish to tell something pictorially or the project will be a failure.

After enthusiasm has been aroused to the proper pitch and the children have discussed what they will put into their pictures, they should have the opportunity of experimenting at once. These preliminary drawings should take part of a drawing period, perhaps a whole period, but never longer. It cannot be stated too emphatically that this opportunity for free expression should always be offered before imposing help.

A class criticism of the first drawings will reveal defects which the children themselves can readily see. They will be able to pick out the forms on which they need practice. In one such lesson a boy volunteered his opinion, saying, "I think we can learn to draw horses better." It is to be remembered that in the lower grades only the briefest and most informal of criticisms are valuable. Five

minutes or even less is a sufficient amount of time to take for criticism in the first grade. The class criticism of the first drawings by the children should result in a decision (in the upper grades) as to what forms they need practice or in order to draw better illustrations.

There is no better device to secure good drawing from children than the criticism lesson if it is properly conducted. First of all, the criticism must proceed in an impersonal fashion. Interest must be in the improvement of the drawing rather than in personalities. The watchfulness of the teacher in suppressing personal remarks, and the use of certain mechanical devices help to safeguard this danger. Names on the backs of the drawings and the use of numbers to indicate the different drawings is helpful. Criticism must be analytic. The type of criticism where the teacher says, "Who can pick out a good drawing?" is worthless, but the lesson where the teacher says, "Who can tell *why* this drawing is good?" and, "How can this drawing be improved?" is helpful. It directs the attention of the children to particular mistakes which they can correct.

To suggest a practice lesson in drawing is to tread on dangerous ground. There are many who believe that anything in the nature of practice will destroy the spontaneity and originality of expression in children's drawings. On the other hand there are many who believe that without a definite procedure of which correct practice is a part, children will make little progress. This point is discussed at greater length under the heading "The Graphic Vocabulary" at a later point in this chapter. For the present we will assume that practice is a necessary step in developing a theme in illustration.

We must remember that the amount of practice must vary with the age of the children. Little children demand immediate results and are incapable of receiving benefit

from any but the briefest and most incidental practice. Even with the older children the practice lessons are very often so long continued that the children lose interest in their original project.

Above all, the children must understand the purpose of the practice and feel the need for it. Otherwise the practice is done for its own sake and in that case it may be truly said that it quenches originality and spontaneity of expression.

It is for the purpose of producing a final good picture that the children are willing to engage in preliminary practice. The final pictures should be treated as masterpieces worthy of every effort. They should have great value in the eyes of the children. These final lessons are probably the most difficult to manage in the development of the theme. How can we give every child individual help when he is planning and drawing his own picture? With forty children in the room it is indeed difficult to turn out forty pictures all different and all well drawn.

First, the teacher must see that each child makes his own plan. The class may be given a few minutes to decide what they will put in their pictures and then a few children asked to tell the others what they plan to have. Sometimes it is a good plan to have all the children make several quick preliminary sketches which are criticized for their story-telling qualities. Children respond very well to the question, "Which sketch tells the best story?" Second, there should be frequent criticisms of the drawings before they are finished. Mistakes are more easily corrected when the drawings are partially finished. Third, when the drawings are finished they should be treated with proper respect, mounted properly, and displayed on a bulletin board. Criticism of mistakes should be avoided and criticism of good points emphasized. Criticism lessons should always include calling attention to good points about the draw-

ings and in the criticism of final drawings the emphasis should be placed on good points to avoid discouraging the children with their efforts.

The teaching of design. One problem in the selection and organization of design problems is whether it is necessary for the children to apply every decorative design which they originate. Is there any value in designing on paper? If design is to assume its true significance in the minds of the children, there is no doubt but that the major portion of it should be carried out in concrete form. But for the older children there is some value in designing on paper. If every design is carried out in some form of craft work, there can necessarily be but few projects completed. In addition to these few projects the older children can benefit from designing on paper. Their ability to criticize and readiness to appreciate æsthetic qualities insures their interest.

There is not sufficient space in this chapter to consider all the problems involved in the teaching of design but there is a problem which demands some consideration. Should design problems be organized in terms of the principles of design, or entirely in terms of particular craft projects? Certainly in the case of the younger children the answer is obvious. They are interested in objective results, not in principles. But in the case of the older children it would seem that some attention should be given to principles. However, an incidental use of principles is preferable to a detailed study. Even at the sixth-grade level children are hardly ready to develop the larger concepts of rhythm, balance, proportion, and emphasis.

Another problem in the teaching of design is how to stimulate originality. Some teachers hold that it is best to surround the children with good illustrative material to give them inspiration. Others oppose such a procedure, saying that the child must never be permitted to copy.

His design will be more original if he gets it "entirely out of his head." To those who have given *a fair trial to both methods,* it generally seems better to use the former. Children are able to create strong and original designs with greater facility when surrounded with much good illustrative material. Why should they be required to work without benefit from the good design which has been produced in the past? Why not show them all that is good? What can we expect them to have "in their heads" without experience and familiarity with the type of design that we wish them to produce? Of course the illustrative material must be used wisely and it is the teacher's job to inspire the children with the desire to make their own designs and not to copy the designs before them.

The teaching of crafts. How shall we evaluate the proposed problem in craft work? To do this, we must first make sure of the specific objective in mind for craft work in the elementary school. Is it to acquaint children with industrial processes and materials? Or is it to lay a foundation for their better appreciation of good design in industrial products? To be sure the two aims may not be diametrically opposed, yet we must make clear which is of major importance. We have already found that the one great and important aim in modern art education is to train appreciation of beauty. It is evident, then, that in selecting craft problems we must keep this in mind. We have no quarrel with the teaching of such material as deals with modern industry. It is without doubt necessary in a broad education to have an appreciation and understanding of modern industry and its processes. But while we are teaching art, let us not confuse the issues. Our aim is to develop higher standards of beauty in visual art. If at the same time children acquire a better understanding of modern industry it is well and good. But let us, as art teachers, beware of the craft problem that does not

emphasize art quality. It should be understood here that in referring to craft problems we mean the type of work that is sometimes referred to as industrial art.

The common types of craft or industrial art problems used in the elementary school are clay, thin woodwork, bookbinding, wood-block printing, weaving, and cement. Each of these represents a type of industrial product with which we find ourselves surrounded in our everyday lives. Our pottery and dishes are made from clay; boxes, book-racks, and furniture, from wood; rugs, clothing, and house furnishings are woven; greeting cards and textiles are printed; books are part of our lives at home and at school; and we encounter many things made of cement. It might be well to compare this type of problem with the type of problem that grows out of the latest fad. For example, gesso work though perhaps not used commonly in elementary schools is typical of this latter sort of problem. In no sense can it be thought of as typifying a large class of industrial objects with which we are surrounded. And when our time is limited it is important that we devote it to those problems which are most important to us in our everyday lives. To know when a book is well designed and bound or to know when a printed textile is artistic is surely of greater value than to know how to decorate a box with gesso. So if it comes to a choice between such problems as these, the answer is obvious.

We cannot conclude this very brief discussion of the teaching of crafts without calling attention to the value derived for the amount of time spent on each type of problem. Weaving, for example, is a medium of expression in which there is very little mental exercise compared with the amount of time that it consumes. After the pattern has once been decided upon and the weaving started there is nothing for the child to do but to continue to weave the threads back and forth, following the pattern. It is ques-

tionable whether much school time should be devoted to weaving problems. In such a medium of expression as clay there is a constant challenge to the mind.

The teaching of picture study. There is no phase of art subject matter that is more neglected and little understood than picture study. We seem to have no common practice either in the selection of pictures for study or in the method of their presentation. In many schools one picture is studied each month, the subject of the picture being selected according to the fancy of the teacher. The lesson has no particular connection with other subjects that the children are studying and often little connection with their interests. There is sad need for more investigation and research to determine children's preferences for pictures and to establish a basis for their selection.

One method of organizing picture-study problems that has been followed with some success under the observation of the writer is an interesting attempt to connect picture study with the children's other interests. Pictures are selected which have for their subjects topics that are being studied in other classes. For example, when the children were studying Indian life in their history class they studied the pictures and sculpture of Indian subjects. The pictures and statuary by Couse, Dallin, Fraser, Remington, Higgins, and others were of great interest to them because they were then engaged in reading and talking about Indian life. Another class studying France in their geography learned to know and enjoy some of the important pictures by French landscape painters, Corot, Rousseau, and Monet. There is immense possibility for picture study in connection with the many topics of geography, history, and literature. Study of the pictures brings added enthusiasm for the academic subject and the study of the geography, history, or literature in turn helps to build interest and enjoyment in the pictures. The pictures have a set-

ting and are related to other blocks of knowledge in the minds of the children.

How much better is this approach to picture study than taking an isolated picture, learning the name of the artist, where he was born, when he died, and what a hard struggle he had before his work was recognized. No wonder the art profession is viewed with doubt since we always emphasize the struggles and hardships endured by famous artists!

The teaching of color. This discussion of the teaching of color relates to the theory of color and not to its use in connection with illustration and design. Certainly theory of color is not to be emphasized at the elementary school level, yet there are a few simple color facts that are necessary. In the kindergarten and first grade, children should learn to recognize the six spectrum colors and to mix orange, green, and violet. At this stage the teacher should be alert to detect color blindness and test the children who are slow in learning the different hues. A simple test can be devised by using red and green pieces of paper and crayons. At the second- and third-grade levels children are ready to recognize differences in value and to use the term. Practice in sorting light and dark samples of color into the six "color families" helps them to organize their ideas about color. In the fourth grade they are able to detect finer gradations in hue and should learn the twelve hues on the color circle, yellow orange, blue green, red violet, and the others. They can also begin their formal study of harmonies through the use of the monochromatic harmony. In the fifth and sixth grades the adjacent and complementary harmonies can be understood and used by the children in their design and craft work. Many courses of study introduce intensity or chroma at this level or earlier, but tests show that children have considerable difficulty in understanding this quality of color. It would

seem advisable to wait till a later time when they can comprehend it more readily.

The question arises as to whether little children should be permitted to use the bright and gaudy colors that they love or be limited to the use of more quiet and harmonious colors. They cannot be forced to appreciate soft and harmonious color because their color sense has not yet developed sufficiently. They generally find enjoyment in bright, glaring colors and get no joy from soft browns and tans. Will the use of bright color cause them to form wrong standards of appreciation? Have we a right to take away from them the colors that bring to them genuine æsthetic enjoyment? There are arguments worthy of consideration on both sides of the question. One solution is to limit them to the use of one strong, bright color with neutrals. This satisfies their desire for strong color in some measure and yet produces a result that is acceptable when judged by the standard for harmonious color.

The teaching of lettering and commercial art. There has been tremendous emphasis on poster making during the past few years out of all proportion to the educational benefit derived. The poster is an advertisement and should not be undertaken unless the children themselves wish to advertise something. There should be a real and concrete situation, not poster making for its own sake. The many school and community activities in which the children are interested provide opportunities for real interest in advertising. After viewing a school exhibit one is often forced to wonder why the children were interested in advertising Africa, Robin Hood, or Cadillac automobiles.

The style of alphabet, for lettering in making posters, book covers, etc., should be easy for children to master. Quite often the younger children are asked to cut letters from paper, making what is known as the block-letter alphabet. We have only to watch the children at work or to

try it ourselves in order to realize the difficulties of this alphabet. It is hard to manage the clumsy scissors that children generally have to use and it is confusing to fold up a piece of paper, make a few cuts, and produce a B or R. Straight, single-line capital letters drawn with crayons are the most simple for children to use. Later they can master block letters on squared paper and these can be used effectively for poster work.

The teaching of interior decoration and clothing design. There is no better place to emphasize art as a factor in everyday life than in the teaching of interior decoration and clothing design. But we must be careful of our method of procedure or art will be as remote from everyday life as in the painting of flowers and landscapes. To draw and to paint room interiors and costumes cannot do much toward increasing our appreciation of beauty in actual rooms and in real clothing. We must use actual materials and real situations whenever possible. In drawing and painting the technical difficulties are so great that the children lose sight of the important objective. How many of them will use drawing and painting in planning their own homes and clothing? One lesson in which actual clothing is criticized for art quality is of more benefit than ten lessons in drawing and coloring a design on paper. One demonstration in placing furniture and rugs correctly is of more value than drawing and coloring a wall elevation. The value of work with real materials cannot be emphasized too strongly.

Special problems in methods of teaching art. There are certain controversies of long standing in the presentation of the art lesson. Some of these are discussed in the following paragraphs.

The graphic vocabulary. This method of teaching children to draw is based on the belief that we can learn to draw certain definite forms in the same way that we learn

to use new words in our verbal vocabularies. A quotation [3] from Walter Sargent's and Elizabeth Miller's book entitled *How Children Learn to Draw* sets forth the argument for the graphic vocabulary.

> Progress in ability to draw is not general but specific. Increase in ability to draw means increase in ability to draw those things upon which one has been practicing. It does not apply equally to drawing other things, except in so far as the things one has learned to draw have characteristics in common with those other things. In other words, increase in ability to draw birds may not imply a corresponding increase in ability to draw trees. We often hear it said that this person can draw or that person cannot draw. Children and artists are usually more specific. The child says, "I can draw a boat but I cannot draw a house." The statements of the artist are likely to be equally definite. An excellent portrait painter will often hesitate to undertake a landscape without special practice in that line. A good landscape painter may fail in attempting to paint still life. In drawing as in any other language, one accumulates a vocabulary within the limits of which he can converse.
>
> To add any given form to their graphic vocabulary in the sense here intended, the children must gain a much more thorough mastery of it than will come from the making of two or three sketches. For example, suppose that one of the topics decided upon is a bird. Instead of drawing different birds successively, the children should learn one bird shape so thoroughly that they can draw it from memory with perfect confidence.

Those who question the value of this method assert that it will crush originality and spontaneity, that the results will be mechanical and lacking in freedom of expression. As a matter of fact when properly used this method results in far greater spontaneity and freedom. The child gains confidence because he has learned how to represent certain forms well. No longer bothered by the problem of how to draw a shape, he is free to tell his story in pictorial form.

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[3] Walter Sargent and Elizabeth Miller, *How Children Learn to Draw* (Ginn & Co., 1916), pp. 247-248.

To be sure, the graphic vocabulary incorrectly used will result in mechanical and formal work. If the children practice on certain forms with no end in view except to learn the forms, then freedom of expression is dubious. But if they are encouraged to use the forms which they have learned as parts of original compositions, to modify and vary the forms in many ways, then spontaneity and freedom will result. Perhaps one of the best arguments in favor of the graphic vocabulary is the approval that is accorded to it by the children themselves. It is definite, tangible, and easy for them to understand. It makes them feel that they *can learn how to draw.*

Mass drawing vs. *outline drawing.* Some supervisors insist upon having the children "mass in" their drawings wihout first drawing a boundary line. They believe that it is easier for the children to get good results because, they say, the child sees the objects of his environment in masses of light and dark and color. It is reasonable to assume, however, that the easiest method is that which the children themselves use when left to themselves. Any teacher who has attempted to teach mass drawing will admit that the children will not use it unless forced to do so. One teacher said, "I have to stand over them every minute while they are drawing or they will draw an outline and fill it in." It cannot be wise to follow such an unnatural method of teaching that the children will never use it without compulsion.

Copying from pictures and photographs. There is again a division of opinion among art teachers on the matter of copying from pictures and photographs. Some insist that if the child copies, he will lose his originality and soon become dependent upon other pictures. This may very well happen if the teacher always provides a picture for him to copy and encourages exact and truthful copying. On the other hand if a child is never permitted to copy from

other pictures he is seriously limited in his sources of ideas. After all his world is small and if he must confine his illustrations to his own particular environment, he is limited in his field of expression. He could not well choose such topics as Colonial history, Greek history, Alaska, or Africa for illustration if he must draw directly from the object. Another and more important argument for occasional copying from other pictures lies in the fact that it is a short cut to better drawing. We will quote again from *How Children Learn to Draw.*

> Copying, a means of close study which almost every art student uses at times, and even tracing, where the hand actually follows, and thus experiences the movements of well-drawn lines, are important occasional aids to drawing. . . . The ability of children to observe objects and to draw from them appears to be stimulated rather than hindered by the use of pictures such as is here suggested.

Children should learn to use pictures and photographs as a source of data. They will seldom copy a whole picture as it is but rather copy parts of pictures that show the particular forms that they wish to use.

Monthly outlines. In the absence of art textbooks it is a custom for art supervisors to issue monthly outlines to be used by the teachers. These may be sent out from the supervisor's office at intervals of four weeks or six weeks and occasionally are compiled and published as the course of study. Since the art teacher cannot turn to many books for suggestions as to what to teach, the outlines must suggest both content and methods of teaching. To prepare just the right type of outline or course of study is one of the art supervisor's major duties. It will be interesting and enlightening for us to study three different types of outlines that were prepared and sent out by three art supervisors.

OUTLINE No. 1

Grade III — *Nature work* — September

Discuss colors observed in landscape, trees, flowers, leaves, and berries. Make landscapes in watercolor showing typical scenes. Work entirely from memory and imagination. Recall what has been learned about color in previous grades.

October

Study shapes of autumn fruits, vegetables, and single leaves. Drill until good results are obtained. Work first in charcoal and then in watercolor. (Save best work for exhibit.)

OUTLINE No. 2

Grade V — *Project—Portfolio for drawings* — February

Materials:

2 pieces of binders board 9″ x 12″.
1 piece of binders cloth 3″ x 13″.
2 pieces of cover paper 9½″ x 13″.
2 lining papers 8½″ x 11½″.

Making:

First step. Paste boards on cloth—lap ½ inch.

Second step. Apply cover papers making inner edge coincide with edge of cardboard. Turn and paste flaps, first cutting out corners to avoid extra fullness at corners. Be sure corners are not trimmed too closely. Be sure that flaps are folded tightly over edge of cardboards.

Third step. Apply lining papers, being careful to keep them evenly spaced from edges of book.

Decoration:

First step. Plan the title on squared paper, making the letters one inch high. Use poster letters.

Second step. Transfer letters to bookcover, placing them in the center and 1¾″ from the top.

Third step. Plan child's name on squared paper, making letters ½″ high.

Fourth step. Transfer names to cover, placing them 2″ from the bottom.

Fifth step. Plan decorative unit on squared paper, using a rabbit motif. Make units 2″ square.

Sixth step. Transfer units to cover placing directly below title.

Seventh step. Color title, name, and unit with black India ink.

Outline No. 3

Grade VI — *Unit of work—bird book*

This unit of work combines art and construction and it is hoped can be made to correlate with nature study and English. The books are to be made and decorated by the children for the purpose of binding their bird drawings. If desirable, their written work in connection with bird study can also be included. If a class desires to make a book for some other purpose it is highly important that they should do so. Above all the *children must purpose to make the book.*

I. Bookcover
   - A. Made to fit 6″ x 9″ drawing paper, that is, with ¼″ extending at the top, bottom, and sides.
   - B. The children should be made to understand *why* the cover is of such a size and *help to plan the sizes* of the different parts. Avoid dictation of dimensions or giving children the material already cut to size.
   - C. Show the class a model of the book which they are making before they begin work. Otherwise they cannot think out the problem intelligently.

II. Decoration of the cover
   - A. Emphasize the proper size and placing for a title. Experiment by moving a slip of paper up and down on the cover until the children decide where it looks best.
   - B. Decorate with a motif from a bird if a bird book is made. The difference between a naturalistic and a conventionalized bird should be taught. For examples of conventionalized birds see pages 2 of Books 6 and 7 of the new *Industrial and Applied Art Books.*

Which of these three outlines will prove most helpful to the untrained and inexperienced teacher? Surely Outline No. 1 will not aid the teacher in planning effective art lessons. Such vague and general suggestions mean nothing at all to the untrained teacher. In despair she turns to the teacher in the next classroom and begs for help. The hint to save the best work for the exhibit alarms her to the point of desperation.

The error of being indefinite is certainly not committed in Outline No. 2. It is very definite and concrete even to the point of giving the sizes of the papers and cardboards to be used. This is the type of outline that the young teacher is likely to desire because it gives her definite directions which she can follow. The more exact and definite the directions, the better she likes it. By following such an outline she can turn out objectve results which are good. With zeal she can produce forty portfolios all exactly alike, all neat, and very nearly perfect. And sadly enough, due to the influence of this type of outline, she misses the opportunity to really teach art and to make it function in the lives of her pupils.

How different are the suggestion and treatment of the bookmaking problem in Outline No. 3. Here the teacher is made to feel that the children must have their share in planning the book and its decoration. It is true that this type of outline may be more difficult for the young teacher to follow and to secure presentable results but its ultimate significance in her training is not to be ignored. If she always depends on the type of outline quoted in No. 2, she will never acquire a true ability to teach art. But the type of outline in No. 3 will stimulate her initiative and thinking in respect to the art lesson. Even though she makes an inadequate use of the method in her class the situation still cannot fail to be better than the absolute dictation suggested in the second outline.

Art as a general subject. The course of study should be so organized as to emphasize art as a general rather than a special subject. Art is as general in its points of contacts with other school subjects and in the school itself as the subject of English. We expect all teachers to teach English in so far as they demand good written and oral work. There are phases of art that are as general as written and oral expression. The appearance of a notebook, the mounting of a picture, the arrangement of a bulletin board, the margins on a written paper, the way pictures are hung on the walls of the school room, the color of the walls, and other features in schoolroom decoration are all art problems with which every teacher should be ready to deal effectively. It is the function of the art teacher to bring about a common understanding of these general-art problems so that all teachers will be ready to handle them effectively. The science teacher and the geography teacher must teach art in an incidental way.

Textbooks for the art class. There is a traditional feeling among many art teachers that a textbook in the art class will cramp individual expression and formalize the work. And when the book is of the copybook variety this undoubtedly is true. The old-fashioned books had a picture on one page and a blank page opposite where the children were supposed to copy the picture to the best of their ability. The formalizing effect of this type of textbook need not be pointed out. Some art textbooks that are on the market now are more than mere copybooks in that they suggest original problems for the children to do. But for the most part these suggestions are made in such vague and general terms that they are meaningless to the children. In this sense they do not fulfill the function of a real textbook. It is not impossible to present art problems in the same clear, simple form, interesting to children, that has been accomplished in other subjects. If we are to ac-

cept art as an essential subject then we must present it accordingly and abolish the vague, indefinite methods of presentation. It is possible to put it into a concise textbook form as in any other subjecst. At present the best that can be said of the art textbooks in general is that they furnish excellent illustrative material and suggestions to the teacher. One may raise the question here whether it is worth while for every child to buy one of these books. Perhaps one or two sets for each class is sufficient.

Art supplies. To the art teacher it seems that there is no other subject in which the work is so dependent upon concrete materials. Much of her time must necessarily be devoted to ordering and caring for them. Such a multiplicity of materials is now used that it would be difficult to mention them all, but a few of the more standard supplies are enumerated below.

1. *Drawing papers.* Manila paper, white paper, and bogus paper come in three stock sizes, 6″ x 9″, 9″ x 12″, and 12″ x 18″. Use of the larger sizes should be encouraged.

2. *Construction papers.* A wide range of colors from spectrum through neutralized colors can be secured in 9″ x 12″, 12″ x 18″, and 24″ x 36″.

3. *Paints.* The semimoist color box with eight colors is preferable to the three-color box. It is better for the children to learn to neutralize each spectrum color than to be hampered by mixing the secondary colors. Poster paints (tempera or showcard) are desirable if they can be afforded because they are much easier for the children to use effectively. Calcimine is a cheap substitute that may occasionally be found satisfactory, though some of the colors are not as bright and clear. Kindergarten children derive much pleasure from painting with calcimine and large brushes at small easels.

Enamel paints (enamelacs) are much more difficult to use and care for than watercolor paints. Many teachers

are now finding it more satisfactory to use tempera paints and give them a coat of white shellac. Automobile paints are a cheap and satisfactory substitute for the enamel sold by school art supply houses.

4. *Crayons.* There are three kinds of crayons, each serving a particular purpose, soft chalk (pastel), hard pressed, and wax. The art teacher should know the characteristics of each type and make her selection according to the result she expects to obtain from their use. Chalk crayons are a soft, easily mixed, and somewhat fluid medium of expression. Many teachers use them with the younger children in place of watercolors because they are more easily managed. Wax crayons do not usually mix well and leave a greasy surface on the paper. The writer believes that hard pressed crayons having just enough wax to make them slip easily on the surface of the paper are the most satisfactory because they mix well and leave a good texture on the paper.

5. *Other supplies.* It is not necessary to list and comment here upon the many other supplies, such as scissors, rulers, paste, clay, raffia, and pencils which are commonly used. Below is a list of places where school art supplies can be secured.

Art Supplies for Schools

The Abbott Educational Co., 208 S. Wabash Ave., Chicago, Ill.
Milton Bradley Co., Springfield, Mass.
Binney, Smith and Co., 81 Fulton St., New York.
The American Crayon Co., Sandusky, Ohio.
The Prang Co., 2201 Calumet Ave., Chicago, Ill.
The Practical Drawing Co., 1512 S. Wabash Ave., Chicago.
Favor Ruhl Co., 425 S. Wabash Ave., Chicago.
Walbrun, Kling and Co., 327 S. Clark St., Chicago.
Dobson-Evans Co., Columbus, Ohio.

Illustrative materials. No school art department ever had an adequate amount of good illustrative material.

There is always a lack of money and sometimes a lack of understanding on the part of superintendents, principals, and boards of education as to why expenditure is necessary. Yet a study of art is a study of beauty and how can we hope to carry on such a study effectively in an ugly, barren environment? Without good illustrative material and without beauty in the school environment, do not expect the children to receive the richest, fullest kind of art training which it is their right to have. When supervisors, principals, teachers, and parents' associations coöperate, it is surprising what can be accomplished in the way of acquiring good pictures, sculpture, and pottery. Below are lists of places where good prints of famous pictures, plaster casts of good sculpture, and art pottery can be secured.

Reproductions of Good Pictures

Art Extension Society, 415 Madison Ave., New York.
Curtis and Cameron, Boston, Mass.
Detroit Publishing Co., Detroit, Mich.
The Art Appreciation Publishing Co., Akron, Ohio.
Elson Art Publishing Co., Belmont 87, Mass.
The Perry Pictures Co., Malden, Mass.
The University Prints, 11 Boyd St., Newton, Mass.
Rudolf Lesch, 13 W. 42nd St., New York.
E. Leyhe, 708 Lexington Ave., New York. (Rare Prints and Books.

Reproductions of Good Sculpture

P. P. Caproni and Brother, 1914 Washington St., Boston, Mass.
Boston Sculpture Co., Sudbury St., Boston, Mass.

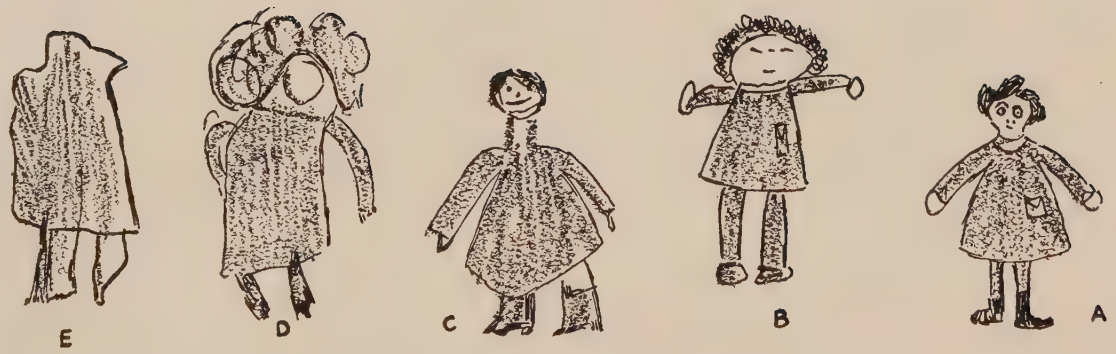
Art Potteries

The Rookwood Pottery, Cincinnati, Ohio.
Pewabic Pottery, Detroit, Mich.
The Hager Pottery, Dundee, Ill.
Van Briggle Potteries, Colorado Springs, Col.
Bybee Pottery, Lexington, Ky.
Newcomb Pottery, New Orleans, La.

Tests and scales for measurement of pupil ability in art. It was but a few years ago that standardized tests and scales were introduced into the field of art education and they were received with much distrust and lack of understanding. Art teachers felt that anything in the nature of a test or scale would make the work mechanical and formal, that spontaneity would be lost. The fact that the children never need see nor use the scale themselves made no difference. Nothing that approached exact measurement could be tolerated in the artistic field. They failed to understand how tests may be diagnostic and point out weaknesses in teaching. Let us say they refused to understand how scientific measurement of the results of teaching is an aid to better teaching.

Yet within the past few years some art tests have been published and art teachers are gradually acquiring a better understanding of the true meaning of educational measurement. The Kline-Carey Measuring Scale for Freehand Drawing is an attempt to measure in representation. It is similar to scales for measurement of handwriting but has four parts, a series of drawings of houses, of rabbits, of boys, and of trees. To decide the quality of a child's drawing, one slides it along the scale comparing it with the drawing at each step in the scale. There are perhaps too many steps in this scale to make it practical for frequent classroom use. However, it is suggestive of the type of scale which any supervisor can devise for use in her own schools. The scale for judging kindergarten drawing worked out by the kindergarten teachers of Richmond, Indiana, and the writer is a type that is useful in determining standards of attainment and discovering shortcomings. The manner in which it was worked out is described below in the hope that it may prove suggestive to other supervisors.

All the kindergarten children were asked to draw a picture of a little girl. Then all the drawings were put to-



A SCALE FOR JUDGING KINDERGARTEN DRAWING

gether and numbered so as to identify them in judging. Each teacher judged the drawings dividing them into five groups. About 10 per cent were to be put in the lowest group, about 20 per cent in the next group, 40 per cent in the middle or average group, 20 per cent in the above average group, and 10 per cent in the highest group. All the judges worked individually. Then the drawings, upon which all the judges or a majority of judges agreed, were taken out and examined by all the judges at a group meeting. At this meeting one drawing was selected by vote of all the judges to represent each step from the very poor drawing through average to the very good drawings. The result was this simple scale. This procedure is not exactly scientific but served its purpose very well in the practical situation. Each teacher who participated in the making of this scale gained a better idea of *what is average* in kindergarten drawing. She also discovered whether the children in her own class were drawing as well as other children in the system. Such scales as these are criticized because they do not take into account the elements of originality and quality of composition. We must admit this and hope that in the future scales will be designed which will include these qualities. For the present, we can at least measure the skill with which forms are drawn.

Appreciation of æsthetic quality is the ultimate aim in art education and there have been a few attempts to measure this ability. One attempt by W. G. Whitford [4] is described as follows:

> A series of problems in simple selection or discrimination were prepared. . . . They offer a means of testing ability to discriminate between superior and inferior art considerations. Each section of the test is so arranged that the pupil can record

[4] William G. Whitford, "Empirical Study of Pupil Ability in Public School Art Courses," *Elementary School Journal*, Vol. 20, Nos. 1 and 2 (Sept. and Oct., 1919), pp. 43-46 and 95-105.

his judgment by making a choice between three or four figures. There is only one correct choice so the scoring of results is very definite.

An attempt to measure the æsthetic appreciation of college students has been made by Christensen and Karwoski.[5] The purpose and form of the test are suggestive of simple classroom tests which the supervisor and art teacher can devise for the elementary school.

The aim in bringing together illustrative material for this test was (1) to select from a large variety including painting, architecture, sculpture, the industrial arts, and design; (2) to include a variation in quality containing both easy and difficult material, and various stages between the very obvious and the very difficult.

Draw two circles, one for each judgment; one around (A) or (B) and one around one of the reasons numbered 1, 2, 3, etc. Only one of these reasons is intended as the best reason. . . .

Select the one which you think is most right.

1. A is better because
   B is better because
   1. The colors are more varied.
   2. There is a greater contrast of color.
   3. The colors are better related.
   4. The colors lend distance.
   5. The colors are more truthful.

The art teacher who will take the trouble to devise some simple appreciation tests for her classes, can check up on her own teaching and on the needs of her students in objective terms. The need is not so much for elaborately constructed standardized tests as for simple informal tests which *really test* the appreciation of the pupils. What do they admire in wallpaper, cretonne, clothing materials,

[5] Erwin O. Christensen and Theodore Karwoski, "A Test in Art Appreciation," University of North Dakota Departmental Bulletin, Vol. 10, No. 7 (November, 1926).

boys' ties, furniture, and pictures? Select one very good sample of design in any of these articles and another example of poor quality design to compare with it. Ask the children which they like and why. The results are objective and often surprising. There are innumerable possibilities for simple appreciation tests and there is no better way for the teacher to discover what the children need most in art instruction.

Keeping up with the literature and materials of art education. To the teacher removed from close contact with the large art centers, there are two sources of information with regard to the latest developments in art education. First, there are the current magazines which contain articles about exhibitions, book reviews of the latest books on art, and many illustrations which make excellent illustrative material. Indeed illustrative material of this type, collected and filed, becomes most valuable because often it can be secured in no other way. And let us not scorn the advertisements in these magazines, for they offer many excellent suggestions. A list of the magazines most helpful to art teachers is given in the bibliography.

Second, there are the pamphlets published by art museums, the Bureau of Education at Washington, D. C., and by The Federated Council on Art Education. A list of the art museums which coöperate with the public schools is given below. These museums also have traveling exhibitions and lantern slides which can be secured for the cost of transportation. The Federated Council on Art Education, that publishes reports from time to time, is made up of three members from each of several organizations, The Western Arts Association, The Eastern Arts Association, The College Art Association, The American Federation of Arts, The American Institute of Architects, The American Association of Art Museum Directors, and the Pacific Art Association.

Magazines

The School Arts Magazine (The Davis Press, Worcester, Mass.).
Design (Keramic Studio Publishing Co., Syracuse, N. Y.).
Arts and Decoration (The Arts and Decoration Publishing Co., 578 Madison Ave., New York).
Industrial Arts Magazine (Bruce Publishing Co., Milwaukee, Wis.).
The International Studio, 57th Street at Eighth Ave., New York.
House Beautiful, 8 Arlington St., Boston, Mass.
The American Magazine of Art (American Federation of Arts, 215 W. 57th St., New York).
The American Home (Doubleday, Doran & Co., Inc.).

Art Museums

The Metropolitan Museum of Art, New York.
The Art Institute of Chicago, Chicago.
Worcester Art Museum, Worcester, Mass.
Museum of Fine Arts, Boston, Mass.
Cleveland Art Museum, Cleveland, Ohio.

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CHAPTER XIII

THE SUPERVISION OF INDUSTRIAL ARTS

BY FREDERICK G. BONSER

Professor of Education, Teachers College, Columbia University

Responsibilities of supervisors in industrial arts. In industrial arts, the supervisor has greater responsibility for the selection and organization of content as well as for methods of teaching than for the older and more definitely standardized subjects. Many teachers have had no work in industrial arts, either as pupils in the elementary schools or as students in teacher-training institutions. Until there is produced a generation of teachers who have had experience and training in this field more nearly comparable to their experience and training in the "common branches," the major problems of the supervisor will be in helping teachers to understand the purposes of the work, to select and organize its content, and to develop satisfactory methods of teaching its several aspects. For those teachers who have had "manual training" or "handwork" or "drawing," the problem of supervision will also be large because of the changes in purpose, content, and method of the modern point of view. It may even be more difficult to render effective help to those who have had some training in the old practices than to those who start without any habits or established attitudes in the work. Tact, patience, and sympathy are especially necessary in securing the wholesome and efficient coöperation of teachers and principals in a field whose standards and ideals are not yet well devel-

oped, and in which teachers vary so greatly in their preparation.

Aims or purposes in industrial arts. To develop among teachers and principals a clear and common conception of the purposes of industrial-arts work is one of the most important problems of the supervisor. Purposes to be achieved condition or determine everything else. This common conception cannot be developed all at once. It will have to be a gradual growth. Some teachers will grow more rapidly than others. Those who see the aims most clearly and who produce results best illustrating the work may be very helpfully used in aiding those who develop more slowly. The wise supervisor uses the strength of his strong teachers as a means of improving the weaker teachers.

In the limited space here available, only a brief presentation of the purposes of industrial arts can be given. Two books are suggested as sources of references for a more complete elaboration and illustration of both aims and methods in industrial arts. These books are *Industrial Arts for Elementary Schools* by Bonser and Mossman, published by The Macmillan Co., and *Social and Industrial Studies for the Elementary Grades* by Welling and Calkins, published by the J. B. Lippincott Co.

By definition, industrial arts is a study of the changes man makes in natural materials to increase their usefulness and satisfaction for meeting his needs, and of the problems of life relating to the production, distribution, and use of material supplies. In the elementary school, it has wholly to do with those aspects of industry which relate to values common to all, regardless of sex or occupation. The definition itself suggests the purposes of the work. The study is clearly for the development of such knowledge, habits, attitudes, and appreciations as will be of the greatest value in helping individuals to use the material supplies of life in the most efficient and satisfactory ways, and to coöperate in

securing fair conditions and regulations of production, distribution, and use. The particular values which represent these purposes of industrial arts may be classified as:

1. Health values—those relating to the selection and use of supplies in ways that help us to keep well and strong, physically and mentally.

2. Economic values—those relating to the intrinsic worth of supplies and to their cost.

3. Appreciative values—those relating to the enjoyment and satisfaction to be derived from the artistic beauty of supplies and surroundings, and from the understanding of sources and methods of production which appeal to curiosity or intellectual interest.

4. Social values—those relating to the division of labor, coöperation and regulation of the conditions of the production and distribution of supplies.

5. Constructive technique and skill values—those relating to the development of facility in handling the common tools and equipment of the household and of other personal and family properties, enabling one to care for these and to make simple forms of repair and construction not requiring the training and skill of specialists.

All of these values can be readily indicated by reference to the appropriate study of foods as an illustration. To learn the kinds and amounts of foods to select for a balanced meal has to do with health values of foods. To find the relative quantities and costs of different foods sufficient for a satisfactory meal brings out the economic values of food studies. To consider the color arrangement of foods and the selection and arrangement of table service—linens, cutlery, china, decorations, and foods—is a matter of art or æsthetic appreciation. To learn of the steps by which a given food, such as butter, or shredded wheat biscuits, or maple sugar is made from the natural material gives an appreciative value that is intellectual. To consider the

ways to regulate the storage and display of foods at groceries and other food stores so that they will be sanitarily clean is a social value—it represents a problem that requires regulation or public control. From the activities engaged in to secure these foregoing values, the developmental values are realized as by-products or associated growths. For clothing, problems with which these several kinds of values are associated can all be readily seen by a little reflection. For housing, furnishings, utensils, and other material supplies, one or more of these kinds of purposes will also be evident through thoughtful inspection. To bring out such values and make them serve life needs is the object that renders the study of the industries worth while in our education. These are the practical life purposes which industrial arts help to realize. But they are more than practical—they are æsthetic, intellectual, and social—and therefore cultural in the best sense.

Keeping conceptions of purpose clear. Very much of the success of the work in any field depends upon keeping clear the conception of its purposes. Because of the older term, *manual training,* and of the use of some of the materials common in industrial occupations, the producer or vocational purpose of work with industrial materials has frequently become confused with the consumer and citizenship purposes of the industrial arts in the elementary schools. Where this vocational conception exists, the emphasis very naturally is placed upon the development of skill in the processes used in commercial production. It is the responsibility of the supervisor to help teachers fully to understand that the work in industrial arts in the elementary school is neither to serve merely to keep children busy with pleasing manipulative activities nor to develop skills in forms of industrial production. The purposes relate to the common needs and experiences of all children regardless of their prospective occupations. It cannot be

too much emphasized that the work relates to the selection and use of supplies, and to the understanding and appreciation of their production, distribution, and use. When this conception of purpose is fully realized, it will not be difficult to see the part that the manipulative activities play in accomplishing the purpose. It will be evident that the handwork is largely a means rather than an end in itself. It both utilizes a natural impulse in children, bringing satisfaction in its expression, and is a means, under proper selection and direction, for developing understandings and appreciations that serve directly in solving life problems. We do not make our own furniture to-day. We select it, use it, and care for it. But the making of one or two simple pieces of furniture may be the means of our learning much of great value in the selection and use of furniture, providing we follow up the problems that confront us in the construction, in matters of design, kinds of materials, forms of construction best for strength and durability, kinds of finishes, and the differences between commercially produced furniture and our handmade school products. Almost inevitably there will also emerge such questions as the kinds of furniture appropriate to different purposes; period furniture, its origin and meaning; the development of furniture among early peoples; the location of manufacturing centers for furniture in our country; and others that may serve as good problems for investigation and report by individuals or groups from the class. The constructive problem opens the way to these related kinds of investigative, æsthetic, and social activity. Excursions to shops or stores, and the use of pictures and books will grow naturally out of the questions raised by the constructive work. But, and this the supervisor will have constantly to remember, these accessory or associated activities will be very largely dependent upon the guidance of the teacher. He will know of the possibilities—the children

will not. His skillful leadership is all-important. Again it may be repeated, the success of the work lies in the teacher's having a clear conception of the purposes to be achieved together with a knowledge of the resources for the study. The wise supervisor will proceed slowly with teachers to whom the subject is new, and by introducing at first only such units of work as clearly illustrate the proper purposes and methods to be developed. After accomplishing successes with several simple units and a growing conception of aims, methods, and resources, progress will usually be rapid and efficient.

The courses of study in industrial arts. Courses of study differ widely in content, but as the purposes indicated in foregoing paragraphs are gradually coming into more general acceptance, fundamental differences are less evident. While the large values relating to health, economy, appreciation, and social coöperation may be the basis for the selection of all content, and the fields of industrial activity, directly affecting our lives as consumers and citizens, may be the divisions for the classification of content, the particular problems and units of work for schools may differ very considerably and yet be the means of achieving the desired purpose.

For each grade, there may be selected some units of work from each of the six large fields of industrial supplies by which we provide ourselves with materials to meet needs, respectively, for:

1. Food in all of its forms and from all sources, plant, animal or mineral
2. Clothing of all important materials and kinds
3. Shelter and furnishings
4. Utensils of clay, metal, wood, fibers, and other materials
5. Records as made and kept by all forms of writing, printing, and publishing

6. Tools and machines of all kinds for facilitating man's work and pleasure

Recalling the values for which each of these fields is to be studied—health, economic, appreciative, social, and developmental—the problems of selection and gradation are to be solved in terms of such questions as these: Which of these values, for each field, could children of the first grade understand and use? What kinds of problems would afford the best means for bringing out these values? What values could second-grade children add, and by what means? Third-grade children? And so on through the sixth grade. The problem is one of selection with reference to the ability of the respective children and the conditions of environment so that the desired values and objectives may be realized.

While limitations of space make it impossible here to present a detailed course of study, a few suggestions relative to each field may be of value to supervisors as providing a starting point for course-of-study construction or revision.

1. Foods. Here are some suggested units of work for the primary grades: the selection of foods for simple luncheons; the study of the different foods found in the groceries, bakeries, meat shops, fruit stores, and other market places for foods with classification into cereals, vegetables, fruits, meats, and the like; the tracing of many foods from the stores to the farms where they are grown; making a grocery store and dramatizing its activities; making a farm on the sand table or floor; considering different ways of preserving foods as by drying, canning, pickling, refrigeration, and in other ways; making health food charts by cut-outs from magazine advertising; making a study of the story of milk, of wheat, of a selected fruit, and of some other common foods; making studies of the foods and the methods of preparing and preserving of early peoples;

making some simple food products; and practicing forms of simple table service and decoration. In addition to bringing out other values, the interdependence of members of the community and other communities may be emphasized.

For the upper grades, there may be studied the wider geographical distribution of food sources; the various methods of food preparation and food preservation as industrially developed; the food problems of peoples studied in history; methods of food purchasing for economy and health; the meaning of balanced dietaries; table service and decoration; simple problems in cooking; and problems of social regulation and control for pure foods and sanitary handling of foods. Much of the best health study for children will center about foods, and likewise many problems of economy are connected with the selection and purchase of foods.

2. Clothing. Some of the valuable types of work are: simple problems in dressing dolls, considering the selection of textile materials with reference to purposes; learning of the characteristic qualities and uses of cotton, wool, linen, silk, and other clothing materials; simple problems of spinning and weaving and of garment making; learning about the design and decoration of clothing; making costumes for dramatizations; dressing dolls to represent historical peoples or peoples of other lands; considering clothing budgets; studying the health, economic, and art problems of clothing selection; and learning of the geographical distribution of clothing materials and the interdependence of peoples in supplying clothing.

3. Shelter and furnishings. A few suggestions follow: each grade may study something in this field that is helpful in developing a knowledge and appreciation of the kinds of value for which we are striving. Making and furnishing a playhouse in a lower grade will bring chil-

dren face to face with the reasons for the placement of windows and doors, ventilation, heating, wall and floor coverings, appropriate kinds of furnishings for each room, and the like. The study in the middle and upper grades of the housing and furnishings of historic and contemporary peoples will add much to awaken intelligent interests in these problems, and to cultivate attitudes favorable to efficient selection, use, and care of home properties and furnishings. Making use of furnishings in local homes, shops, and stores may help very materially in the development of a knowledge of economic values and the cultivation of good taste.

4. Utensils. The following units prove interesting: children find much satisfaction in making dishes, vases, and jars of clay, and in making baskets and boxes of various materials. Connected with these kinds of manipulative activity is the opportunity for interesting lines of investigation into the industrial production of pottery and other utensils of wood, paper, cardboard, metals, textiles, and other materials. The historical study of utensils is full of interest as is also the study of the utensils of present-day peoples. Selection, use, and care of utensils should be stressed. The mere making by the pupils of much pottery or many boxes or baskets is of very little value in itself.

5. Records. Books may be made for preserving written work, graphs, charts, or pictures. From the very simplest kind of booklet for the first grade, each succeeding grade may make a more advanced type until the commercial form of the present-day, bound book is made in the sixth grade. With this work should go the study of the story of writing and writing materials, of the alphabet, and of printing and publishing. The development of this field historically, a portion in each grade in connection with the history of peoples studied, is of fascinating interest and

is replete with opportunities for experimental, constructive, and illustrative activities. The making of paper, block printing, and electrotyping are typically interesting and worth-while problems. A friendly and intelligent attitude toward books can hardly fail to result from this study as it cumulatively develops through the elementary grades.

6. Tools and machines. They have no purposes in themselves. Their study is most appropriately connected with the purposes for which they are used. Some are used in connection with the production and preparation of foods, as farming, harvesting, and milling machinery; some with clothing, as spinning, weaving, and sewing tools and machines; and so on through the list of human needs for material supplies and devices. These may be studied in relationship to the kinds of need they help to meet and the advantages noted. The proper use and care of tools and machines in common use should receive attention. In the sixth grade, a few periods may well be given to an historical summary of the development of tools and machines in each large field, together with a consideration of the outstanding discoverers and inventors in each field. Children should be helped to understand and appreciate the development and use of machines of specialized types in industry and transportation and their significance in the development of modern life. Many social changes and problems have resulted from the development of machinery. Wholesome attitudes of adjustment to the advantages gained by the use of machines to take the place of hand labor should be the result of the study of the values of machinery in increasing human possibilities for abundance of life.

The foregoing are but suggestions for emphasis. In the general reference books at the close of this chapter, detailed suggestions and outlines may be found. Following the list of general reference books is also a brief, selected list for

each of the six respective fields. By keeping clearly in mind the purpose of the work, selection of units for each grade may be made so that a unified sequence of work will be developed in each field in an order adapted to the growing ability of children from the first grade to the sixth. The possibilities are so abundant that any course of study developed should be flexible enough to permit the individual teacher to make whatever adjustments the conditions require to meet the needs of her class. Supervisors should know of the most helpful courses of study in print and should make available to their teachers whatever is of suggestive value from the good work of other school systems.

The overlapping of industrial and fine arts. Every problem in construction is a problem in design. The form must be thought out, largely in advance. We wish to have everything we make as beautiful as possible in form and color. Design and decoration of industrial supplies are therefore as vital for the purpose of beauty as for use and economy. Both elements—utility and beauty—belong with constructive problems in making clothing, furnishings, utensils, or whatever else may be made. Both elements are, or should be, considered whenever we select and purchase industrial products. Practically we do not think of separating them, but consider both as integral aspects of the objects to which they belong.

This should be the attitude and procedure in the elementary school. Those phases of fine art that relate to the design and decoration of material commodities should be studied as these commodities themselves are taken up, and not as separated, unrelated art principles. If we expect art principles to function in the selection and use of clothing, furnishings, and the like, the principles must be learned as they apply to these materials. The connections must be learned—the principles and the applications together—in

school if we wish them to operate together outside of school. For all phases of fine art relating to industry, therefore, the two lines of work should not be separated into two studies but should be regarded as related aspects of each respective unit of work as it is taken up. When teachers see that these art problems are those of the everyday kind for all people, and not the problems of training prospective artists, they will feel less hesitation in taking them up and learning with their children. Of course, there are those phases of fine art relating to painting and sculpture which have almost nothing to do with industrial design and decoration and to which the foregoing statements do not apply. There is a need for studies in art appreciation quite apart from industrial arts. There may be many points of contact between these phases of fine art and the industrial phases, but the point here emphasized is the need for unifying the study of the elements of utility and beauty as vitally related qualities of all industrial supplies.

The relationship of industrial arts to other studies. Industrial arts interests, activities, and problems lead naturally and almost necessarily to questions that are answered by the content of arithmetic, geography, elementary science, and history. They also often form the setting or provide the background for selections from literature, art, music, dramatizations, and games. The supervisor will find it helpful to teachers to point the wealth of opportunity in industrial arts for motivating problems and questions in other subjects and making their learning easier and pleasanter because they have meaning and purpose. The problems of measurement and value in constructions and studies of costs give significance and immediate worth to many things in arithmetic that otherwise would have to be presented in isolation. The sources of materials, centers of manufacture, and the routes of travel in the distribution of industrial materials and products are questions arising

in industrial studies which are answered by geography. In many industrial-arts processes and problems one comes face to face with facts and principles from elementary physics, chemistry, and biology that should make up the content of nature study or elementary science. How present-day methods and processes in industry have developed from simple beginnings, and how they have changed through the centuries are matters of history. There are shoemakers' poems and songs, poems and songs of spinners and weavers, and folk tales, games, plays, and dances growing out of the activities of many industries. Many of our favorite stories, poems, songs, and pictures relate to the daily work of those who supply the goods to meet our daily needs.

Most teachers will need help from the supervisor in making use of the related materials from other subjects. As most courses of study are organized, the relationships of one subject to another are not very close. Until a better organization of the school materials is made, each industrial-arts unit of work might well include whatever properly belongs with it of geography, or arithmetic, or history, or science, or any other subject. If the material from any of these subjects happens to fit in with their sequence at the time, then the connection will be very easy and time will be saved—the unit of work can extend over as many of the subjects as are connected for the time being. If, however, the work of the other subjects at the time is entirely unrelated, then no direct connection can be made, and the matter needed from other fields will have to be given in the industrial-arts time. Even then there will be a saving of time and effort for the related subjects, for when the pupils come, in any other field, let us say geography, to some material they have already learned in industrial arts, a hasty review will be sufficient for this material. So for other subjects—what is learned well as a part of an

industrial-arts unit of work will not require much time in another subject. Also, what is learned in another subject of related value to industrial arts may be recalled and used at the proper time. The point to emphasize is that of getting whatever is needed to round out all of the closely related aspects of the industrial-arts problems or units, regardless of how they may be classified as subject matter. Supervisors should help teachers to learn to use arithmetic where arithmetic is needed, geography where geography is needed, and so on for all of the subjects. Leading both teachers and children to see these relationships of subject matter to really interesting and vital problems and needs will be found to vitalize their work most wholesomely and to bring school work and out-of-school life effectively together.

Methods of teaching. The problems of method in teaching industrial arts are very intimately related to those of making the course of study. More than in most studies, the results of instruction are to be rated in terms of the development of abilities to do, to select, to judge, and to appreciate. Factual knowledge gained is chiefly of value for its direct use rather than in its possession. Since the course of study is so extensively in terms of activities, methods of instruction emphasize the initiation, direction, and growth of activities. Using the impulses of children to construct, to investigate, to collect, to dramatize, and to tell others of their interests and work by exhibits or programs is therefore a vital factor in the development of method. Connected with purposeful activities of these practical kinds, there will very often naturally arise the need for information that can be gotten only from printed matter, for it is not always feasible to learn by experiments, excursions, or questions of people. Out of these purposeful activities in both practical work and reading should emerge new problems, interests, and activities. The super-

visor may need to help teachers to develop ability to guide such interests as they appear in their children, or even to stimulate them if they do not spontaneously appear. Selection among various possible interests is important in order that whatever activities are chosen may be rich in the educational values that the work represents.

Since, in the elementary school, there is no attempt to develop productive skills in any of the industrial-arts activities, there will be practically nothing of those problems of method relating to drill work. The problems of teaching and learning are those having to do with securing information, cultivating appreciative attitudes and ideals, and developing selective behavior responses in accordance with information, appreciations, and ideals. Illustrative examples of these several types of content or activities will suggest points of emphasis to aid in the guidance of teachers. Following are a number of the different forms of outcomes to be expected from the work:

Kinds of Information

The different kinds of textiles and other clothing materials with reference to health, economic and artistic values and uses.

The seasonal and occasional adaptations of clothing.

The methods of protecting and caring for clothing.

The nutritional needs of the body for food.

The kinds of food constituting balanced dietaries.

The health questions related to the preparation of foods by different methods.

The problems of food costs.

The values of the different materials used in household furniture.

The methods of caring for furniture.

The various methods of treating interiors—walls, floors, and trim—for protection and beauty.

The purposes of using different materials in utensils, and the relative values of these in terms of utility, cost, and beauty.

The values of household labor-saving devices and equipment.

Kinds of Attitudes, Appreciations, and Ideals

Attitudes of interest in industrial production, and of sympathetic understanding of the workers in industry.

Appreciation of good design and good composition in textiles, clothing, houses, interiors, furnishings, utensils, printers' products, tools, and equipments.

Appreciation of the changes in methods of industrial production, of present-day methods and problems of production and distribution, and of the importance of industrial workers and their well-being.

Appreciation of the interdependence of occupations and of peoples in different parts of the world.

Ideals of economy, thrift, good workmanship, pride in work, good taste, and of respect for those who maintain the industries.

Kinds of Behavior Responses

Good health habits; use of economy in selection and purchase of foods, clothing, and other commodities; use of good taste in selecting clothing and other properties; manifestations of interest in the new developments of industry; evidences of a sympathetic attitude toward industrial workers; and evidences of ability to use materials and tools in the upkeep of properties and in meeting simple needs for repair and construction.

This list is not exhaustive, but merely suggestive. The means of learning are chiefly through first-hand experiences and observations, supplemented by studies of the experiences of others from printed sources. To be a success, the work will have to be quite informal, with children and teacher working together, each contributing whatever he can to a common purpose. Making the proper use of materials from other subjects, and utilizing the motive force and the experience background of the industrial-arts work to help in other subjects, will be one of the problems for many teachers who have become habituated to treating subjects as separate and distinct. Supervision will have a responsibility in helping to overcome this condition where it exists.

The most important problems of method will be solved very largely by keeping three factors clearly in mind and in operation: the purposes of the work; the use of the natural impulses of children which make the work of satisfaction to them through the application of the psychological laws of readiness and effect; and the use of the interests and activities of the environment.

The native equipment of children for industrial arts. Children have natural impulses and interests in abundance for industrial-arts activities. Among the most outstanding of these are the impulses to manipulative activity, investigation, art expression, and social activity. All children are interested in handling materials and using tools and implements. By the activities of adults about them they are soon stimulated to construct all kinds of products in imitation of those in common usage—houses, furnishings, wagons, automobiles, fire engines, derricks, boats, kites, airplanes, clothing, and the like. The adult enterprises all about stimulate inquiry and investigation of the ways in which work is carried on, as evidenced in children by their untiring observation and their questions of how, what for, and why. Children enjoy varieties of form and color, and they have a desire to express interests in form and color by drawing, painting, modeling, weaving, and other activities in representation and design. The social impulse expresses itself in group play with materials and constructive activities requiring coöperation, and in noting and sharing as far as possible the practical work of the home and community.

While children vary in the degree to which these impulses express themselves, all possess them in some measure, and, in most children, they represent the dominant tendencies to action in the early elementary-school years. In the use of these forms of native equipment lie means of guidance, direction, and growth of children in increasing

their understanding of the life about them and their participation in it with greater effectiveness and satisfaction. This is education. Through these activities are revealed the needs for the materials and processes of arithmetic, reading, writing, geography, science, and history and the uses of these materials and processes in life. Children are abundantly equipped for the work in industrial arts, and without the use of the study of the industries there is little opportunity for the appropriate development of these native capacities as conditions exist in our day and generation. It is the nature of children to be active, both physically and mentally, and the work provided by the industrial arts exactly meets the needs for such activity and uses it in promoting their growth—their education. The success of the activity curriculum in the elementary school is very largely dependent upon the degree to which it includes industrial-arts content.

Environment furnishes the stimulus to industrial arts. As has been indicated, the environing life of children furnishes abundant stimulation to industrial-arts activities, and provides the starting points, the occasions, and the motives to such activities. Problems of food, clothing, shelter, utensils, tools and machines, and other material supplies and facilities are constantly present in the home and community, wherever children may live. Contacts and approaches do not have to be in any way artificial. Children are living in the midst of these problems and materials. The problems of teachers are those of selecting activities from among the many in which children already have experiences, and directing these in such ways as to give the greatest help in promoting growth. Selection, of course, requires thoughtful recognition of the past experiences of the children, of just what they now most need, of their present capacities and interests, and of the kinds of new experiences which will both fit in with these elements

and lead on to further interests and increased growth.

Supervision with reference to impulses and environment. The supervisor will usually find that teachers need help in holding their attention to these factors of the native impulses and capacities of children and to the contacts of environment in the lives of the pupils. The line of least resistance is that of using the manipulative impulses to the neglect of investigative, æsthetic, and social impulses and to ignore the problems of the environment. For manipulative activities, such materials as paper, cardboard, grasses, reeds, yarn, splints, blocks, and the like are relatively easily provided. When manipulative activities consist largely in constructions of these materials, they usually become mere busy work. They become activities from which practically nothing is learned. Unfortunately there are numerous books that present great varieties of such activities with complete, detailed directions for constructions, and when these are followed the work is little more than mere dictation exercises. Children are deprived of all opportunity for thinking, designing, and inventing in the use of these materials. Little or no relationship to life problems is found in the work, and the investigative, æsthetic, and social impulses have no opportunity for expression.

A fundamental principle which will help greatly in the selection of work that is worth while is this: There should be no doing without learning from it. Of each proposed unit of work, the teacher should be helped to ask and answer the question, What will be learned by the children in carrying on this activity that will help them to do or understand or appreciate better or more fully something in life that it is very desirable for them to do or understand or appreciate? If the proposed activity offers nothing in answer to the question, then it should be abandoned.

The environment provides the kinds of problems and

activities in supplying ourselves with needed food, clothing, shelter, utensils, and the like in which the children increasingly participate as they grow older. To develop in them such understanding and taste and social responsiveness as will enable them to select and use such supplies, and to coöperate efficiently in regulating their production, distribution, and use is the large purpose served by the study of the industries. It can readily be seen that constructive activities are only one method by which these values are learned. Along with the simple constructions in weaving or the making of garments are problems relating to the selection, use, and care of garments and other textile products from the standpoint of health, economy, and good taste that require investigations and other forms of experience added to the constructive activities. To help teachers to see these larger values and how they may be achieved by using the native impulses of children and the factors of environment is one of the most important problems of the supervisor.

Forms of practical activity. The practical activities making up a part of the work in the study of each field of industry in each grade may be in several forms. Handwork in the making of products out of food materials, textiles, wood, clay, or other supplies is but one form. The collecting of illustrative materials from the community or from children in other communities by correspondence, or the securing of illustrative materials from producers and making charts is another form that involves much study and that has good values in direct relationship to aims. Excursions to stores, shops, factories, and other places in which children may see processes of production going on or varieties of finished products and learn of differences in intrinsic value, cost, and art qualities of products are very profitable if well planned. Dramatizations of production, distributive and selective activities for some materials

and supplies are means of bringing out values if the children build up such dramatizations themselves under good guidance. The organization of exhibits for other classes or for parents or for the general public may be profitably used also, providing the children and teachers plan and present such exhibits to show values and not merely to entertain. Keeping an exhibit in a store window on a main street in the community, emphasizing points of value to consumers, and changing the exhibit every few weeks will often be found of much value.

The teacher may be helped to learn as he teaches. For a considerable time to come, there will be many teachers who are not trained in industrial-arts work. The supervisor can help these teachers to avoid discouragement and to accomplish good results by aiding them to learn and grow along with their children. By supplying teachers with selected sources of reference material not faster than they can use them, by helping them to plan excursions and investigations, and by occasional demonstration lessons, teachers may rapidly become efficient in the work and continue to grow largely independently. All have a background of personal contacts in their own past lives that can be drawn upon and organized with reference to the needs of the work. If, for example, it becomes desirable to take classes of children to a furniture store to learn something about selection and cost, it may be found that none of the teachers has had such an experience. It would be an excellent procedure for the supervisor to plan such a trip with the teachers, first organizing the questions which it is hoped the visit may help to answer, and then to accompany the teachers on the trip. The problems of visits in general would be well illustrated—getting permission in advance from the proprietor, arranging for guidance after arriving, noting the kind of behavior that will be helpful during the visit, consideration of such taking of notes as

may be desirable, and the conduct of the report or conference after the visit. Such modifications of the trip as might be needed for taking the children because of their immaturity would be a question to consider. If the supervisor cannot accompany the group of teachers, he could still help them to plan the trip, and the teachers, in one group or several, could profitably take it before going with the children. But even when the supervisor cannot give teachers direct help in the detailed planning of trips or other activities, he may encourage them to plan and work with their children, both teaching and learning as they go. With their maturity, the teachers can be reasonably sure to achieve a margin of leadership adequate for the guidance of their pupils. By reading and studying but a few hours a week, teachers could help their children to grow as they probably would not grow in any other phase of work in which the teachers themselves were not growing.

At the outset, the teacher who is untrained in the work will probably protest his lack of skill in productive work. He will have the vocational conception of the study instead of the educational. When he is assured that he does not have to be an expert in drawing, design, sewing, cooking, or cabinet making, but that the handwork is a means and not an end, he will usually respond with a new and favorable attitude toward the work. As he enters upon it and finds the satisfactions derived from it in his whole teaching program, both by himself and his pupils, it will become a delight if he responds as do most teachers who have had the experience. It often transforms the whole outlook of the teacher upon his work.

Measurement of results in industrial arts. There are as yet no standard tests or measurements for work in industrial arts in the elementary school. If mere productive skill were the aim, it would not be difficult to make and standardize such tests. But for purposes in terms of use-

ful information, habits and attitudes relating to health, economy and social relationships, and appreciations of art and intellectual qualities, exact measurements are difficult. Tests for information can easily be made by use of either the old or the new-type examinations, and such examinations should occasionally be given on the work that is done by the respective grades. Since the specific work in different schools may differ quite considerably, any examinations given to all schools should naturally relate primarily to common elements of value and permit of variety of illustrations.

Although it is difficult to estimate achievement and progress with exactness in a study whose outcomes include as much of the development of judgment, taste, attitudes, social-industrial interests, and appreciations as does the field of industrial arts, certain standards of teaching and learning that are more objective than mere general, personal opinion may be utilized. There are some conditioning factors and controlling procedures that the supervisor may keep in mind together with certain evidences of growth in specific abilities or qualities which offer bases for the estimate of the worth of the work as it proceeds. From the more outstanding factors and standards of measurement of the work, the following are given as helpful illustrations:

1. The equipment, tools, and materials should be arranged so that whatever is needed at any time may be had by the pupils without loss of time and without confusion or disorder.
2. For each period of work, the teacher should see with reasonable clearness in advance the materials and equipment that will probably be required and make provision for them, either from school supplies or by arrangement with pupils to furnish them.
3. Children should be helped to learn how to carry on their work in comfortable positions, to work intensively, and to avoid interfering with each other.

4. Children should learn to use efficient forms of technique or best known methods in handling materials and tools, both for the sake of establishing right habits and for saving time.
5. Children should learn to work intelligently, that is, to see the steps in their procedure in sequence, and to follow these by an orderly plan.
6. Children should learn the names of tools and materials in connection with their use, and, also in connection with use, the properties of the materials and the reasons for the construction of tools in relationship to their particular purposes or functions.
7. Children should learn to compare their products with those of high grades of excellence in order to develop good standards of quality and taste as a basis for selection and appreciation.
8. Children should learn to plan excursions or trips so that they make such trips with specific purposes and conduct them with safety, orderliness, courtesy, self-reliance, and promptness.
9. The teacher should make provision for the individual differences of children, helping each to use his capacities in ways best adapted to his growth needs, and to develop an attitude of success by undertaking enterprises in which he can achieve reasonably satisfactory results.
10. The pupils should learn to help in the selection of purposes, and to plan and direct their own work, developing self-reliance, self-direction, and ability to judge the quality of their own work.
11. The pupils should learn self-control, coöperation, and courtesy in conducting their work so that there may be no disorder, or interference, or annoyance by any one.
12. Children should learn the thought content directly related to their practical activities together with the practical activities themselves.
13. Teachers should never take it for granted that children are making inferences as to meanings, elements of taste, attitudes and ideals as by-products of their practical activities, but should make these associated elements matters of conscious attention.
14. Children should be helped to face problem situations squarely, to learn the techniques of problem solving and

apply them, and to develop a scientific attitude toward problem situations.

15. Children should learn how to use books, cyclopædias, magazines, newspapers, pamphlets, maps, charts, globes, and other sources of reference helps and materials with efficiency and without loss of time in their studies of the industries.
16. Children should be helped to see direct relationships between their work in industrial arts and other school subjects so that full use may be made of the interrelationships of studies.
17. Children should be encouraged to apply in the immediate situations which confront them, in school and out, what they learn of value in the selection, use, and care of industrial products—foods, clothing, household furnishings, utensils, and the like.

The standards here suggested have been chiefly in terms of the learnings of children, but, what the children learn, how they learn, and what is developing in the children in terms of practical habits, habits of studying and learning, attitudes, tastes, and personal and social ideals are the evidences of the quality of teaching. One of the most important dangers to guard against is that of letting the study drop to the level of mere handwork without the major values to which the handwork activities should always contribute.

For growth in attitudes, ideals, and appreciations, the judgments of the teachers, based upon comparisons of later work with earlier, and upon observations of ways of acting, thinking, and feeling may, perhaps, be the chief means of rating progress. If the children are engaging enthusiastically in the work, showing efficient effort as well as continuing interest, opening up new lines of inquiry and following these with increasing self-reliance and success, then the presumption is strong that the work is going well and profitably. But along with such activity and interest should also go some evidence of application of the health, economy,

art, and social values which the guidance of the teachers should make prominent in the work.

The judging contest for both economic and art values is just as practicable for furniture, clothing, and utensils as for corn, or live stock, or other farm products in agriculture. Shops and stores will usually coöperate gladly in providing materials for such contests. Sixth-grade children might well give expression to the results of their study by holding judging contests on dresses, hats, suits, neckwear, shoes, and household furniture and utensils. Agricultural teaching has made much of contests and found them highly valuable. Industrial arts could also profit by them.

For growth in manual dexterity, the improvement in handling materials and tools will show itself in the improving quality of products. If the manipulative enterprises are well graded from simple to more difficult processes, this growth will practically take care of itself. Occasionally a child may be found who is deficient in neuromuscular coördination and control. Such a child should be given special treatment after proper diagnosis by the school psychologist, psychiatrist, or physician. Where a school system is not large enough to have special classes for such children, each individual child may be given work adapted to his particular needs as well as is possible under the conditions. These children should not be made unhappy and miserable by attempts to hold them to the standards of children who are normal in dexterity.

Equipment and materials. The purposes of the work determine the kind of equipment needed. Much of the work can best be done in the classrooms with very few tools, particularly in the primary grades. It is desirable to have one work bench of proper height in each grade room with the simpler tools which go with a work bench. Much of the work can be done at the regular desks or tables of the pupils. For work with clay, an oilcloth cover will

protect the desk tops. Every grade room should have a sand table—one of the most useful pieces of equipment, not only for industrial arts, but also for geography, history, literature, and science. Collections of pictures should also be built up by the joint efforts of children and teachers. The supervisor should help teachers to see ways of using all of the resources that they have and to be resourceful in stimulating pupils to bring in some tools which may have but occasional usage.

For each school building, however, it is desirable to have an industrial-arts room, fitted for such appropriate work as cannot be done well in grade rooms. To this room, any grade should be privileged to go when its facilities are needed. The equipment should include several tables and work benches of different heights, the simpler hand tools for work in wood, a few cooking utensils and dishes, a gas or oil stove with an oven, a cupboard lined with zinc for clay work, a soldering outfit, several files, wrenches and pliers, a sewing machine or two, drawers for large sheets of paper, a metal-lined cupboard for paints and related supplies, and plenty of other cupboard and locker space for materials and partly finished products. Running water and plenty of sink room should always be provided. In equipping a new room, it is probably desirable to secure only those tools in advance for which there is foreseen an assured need, adding others as needs arise and thus not cluttering up the room with equipment which will not be used. An additional important provision should be that for illustrative materials. Large bulletin boards, wall space for the hanging of charts, and cases or lockers for materials showing industrial processes or historical materials should always be provided.

In equipping an industrial-arts laboratory or shop, the following detailed list of tools constitutes a liberal supply for comprehensive work for twenty-five pupils:

1 iron miter box
5 cross cut saws, 20″—10 points to the inch
5 rip saws, 20″—8 points to the inch
25 ten-inch back saws
2 keyhole saws
25 hammers—8 oz., flat face
4 bit braces—6″ sweep
2 sets short auger bits, ¼″, ⅝″
1 set long auger bits, ¼″, 1″
13 double benches, adjustable for height, iron screw vises
8 screw drivers, different sizes
1 coping saw
6 clamps—iron "C"
5 short chisels, one each $\frac{3}{16}$″, ¼″, ½″, ¾″, 1″
25 try squares—6″
1 steel square
2 marking gauges
5 bench hooks
25 rulers
4 mallets—3½″ face
1 countersink
25 pencil compasses
1 gauge, ¼″; 1 gauge, ⅜″; 2 gauges, ½″; 2 gauges, ¾″
12 block planes
6 Jack planes
4 spoke shaves
1 level
1 half-round file; 1 round file; 2 flat files
1 file brush
1 pair pliers—side cutting
1 pair tongs
1 ladle for lead
1 soldering iron
1 blow torch—bellows type
1 medium oil stove
2 tinner's snips
1 roller cutter
1 big iron vise; 1 small iron vise
1 large paper cutter
1 large bookbinder's press
1 small printing press
1 potter's wheel

1 blackboard
1 kiln for firing pottery, placed in accordance with fire regulations
Pans, dishes, large spoons, and kettles

These items of equipment, together with adequate cupboards, lockers, and other general provisions suggested in a foregoing paragraph, would meet most needs for all of the different kinds of desirable work. Looms and numerous forms of other equipment needed should be made, as their design and construction are of value in realizing the purposes of the work.

Materials. In providing materials, supervisors should help teachers to think through the probable needs of supplies for a half-year or a year and thus determine the list of materials to be secured in advance to avoid delays in work. For those materials which can be secured in the community, it is of much educational value to have the children help in the planning, selecting, and purchase of these when the need for them comes. For each school building, a part of the money appropriated for supplies should be in a contingent fund or a petty cash account which may be drawn upon at any time when the need arises. For the work that is most educative, not all supplies can be known about in advance. Any teacher is greatly handicapped in her work if she cannot meet unforeseen needs as they develop. Where no provision is made for needed money through the school year, supervisors may occasionally help schools by developing the coöperation of parent-teachers' associations, presenting exhibits or programs for pay, or by having sales as means of securing money for supplies. But the supervisor should, if possible, secure such funds through convincing the superintendent and the board of education that they properly and desirably form a part of the regular school budget for supplies.

Much material can be contributed by children from the

homes and the community at almost no cost in money to any one. Discarded materials from homes and stores often serve the educational purposes of the work as well as new, expensive materials. Developing the capacity and the habit of using all available resources to serve their purposes is of very considerable educational value to children. Children should also be encouraged to bring in related objects for exhibit purposes, particularly those illustrating historical steps in the development of industries—old spinning and weaving devices, old lanterns, old pieces of pottery, early forms of textiles, and the like. Alertness should be encouraged in locating interesting objects in shops, stores, libraries, museums, and other places in the community which may be visited.

Printed materials also constitute an important part of the equipment for industrial-arts study. Each school building should have a select library of books and pamphlets devoted specifically to techniques and processes in each kind of industrial-arts work. When a problem in constructive technique arises, pupils should be taught to turn to a book or leaflet that will describe the technique or process, or provide the technical information needed. In addition to these types of books, there should also be good collections providing information about sources of materials, distribution of industrial plants, the historical development of industries, the economic and social phases of industry, vocational guidance materials relative to industrial occupations, and stories of inventors and discoverers in industry.

For information about techniques and materials, manufacturers' advertising pamphlets are often valuable. Classes may secure leaflets about rubber, cement, pottery, rugs, lumber, paper, and many other materials by merely asking for them. Teachers should also be helped to know about the values of free or very inexpensive govern-

ment documents to be had from the Superintendent of Documents, Government Printing Office, Washington, D. C., and from the several departments of the home state government. The use of current periodical articles and of the advertising pages of current magazines is so well-known that it needs merely to be mentioned. The supervisor should help teachers to develop usage of all of these sources of printed materials and should carry the good news of the special achievements of one teacher or school in securing such matter to the other teachers in his territory. At the end of this chapter are lists of a selected few books in each field, but others should be added as resources permit.

Supervision is successful only when it results in the improvement of teachers. In addition to the direct aids of supervision, supervisors should encourage attendance, by teachers who need it, upon courses in industrial arts or related subjects. When sufficiently near normal schools, teachers' colleges, or schools of education, regular or extension courses may often be arranged for Saturday mornings or at convenient times in the afternoons or evenings of school days. Summer-school courses may also be encouraged where extension courses are not available. In places where no other sources of instruction are available, short units of work, each of from four or five to ten sessions, might well be offered by the supervisor, shaping the work to the most evident needs of teachers. The most common difficulty found among teachers is their tendency to emphasize the handwork and neglect the development of the thought and feeling content. The training of most of them has not included these kinds of content. The remedy lies in helping them to learn the related content of several units of work and to develop in them the inquiring attitude and method so that they will, of themselves, secure the needed information in later units of work. Another difficulty is that of neglect of the fine arts aspects of the work.

If emphasis is placed upon learning how to judge art qualities and to appreciate them in the kinds of objects used in daily life, and not so exclusively upon developing the techniques of art production, this difficulty may be largely eliminated. Short units of work by a qualified instructor would help materially to remove this difficulty. Primary teachers could be taken in one group, intermediate-grade teachers in another. To be successful, such work should be the result of the development of a desire and enthusiasm for it among the teachers.

Stimulating an experimental attitude among teachers, helping them to have courage to try promising new units of work, appealing to their imaginations so that they may become more sensitive and alert to the conditions of environment and the needs of the children, awakening new visions of teaching achievement—these are all factors in that kind of supervision that makes for the growth and improvement of teachers. Providing well-selected reading matter from both books and periodicals, and encouraging individual or group reading and study among teachers will also help. These measures, and all others, together with tact, sympathy, and intelligence will help in the improvement of teachers. Whatever contributes to the improvement of learning among the pupils contributes to the improvement of instruction among teachers.

Keeping up with the literature of industrial arts. Supervisors may learn of the new books and articles on industrial arts by consulting a relatively small number of sources. The first source suggested is the *Industrial Arts Magazine,* published by the Bruce Publishing Co. of Milwaukee, Wisconsin. By scanning its articles and the book-review section, much good material will be found. The *Industrial Education Magazine,* published by the Manual Arts Press at Peoria, Illinois, is also good, but it gives most of its space to high-school industrial arts and vocational-

education problems. Note should be made of any articles on industrial arts in the other school periodicals which every supervisor should scan from month to month—*Education Administration and Supervision,* the *Journal of the National Education Association,* the *Journal of Educational Methods,* the *Elementary School Journal,* the *School and Society,* and such other magazines as contain materials relating to elementary education. Every city professional library should have the Readers' Guide to Periodical Literature and the Publishers' Weekly, both published by the H. W. Wilson Co., 958 University Avenue, New York City. Each number of these should be scanned for articles of significance not included in the periodicals regularly read. These will announce new books and articles and keep the supervisor informed as to what is available. New books on industrial arts for elementary schools should be read and evaluated. If they have values not included in books already familiar to teachers, the attention of teachers should be called to them. An occasional digest or abstract of new industrial-arts books and articles might well be made by the supervisor or a small group of teachers and distributed in mimeographed form to all elementary-school teachers.

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CHAPTER XIV

THE SUPERVISION OF HEALTH EDUCATION AND PHYSICAL EDUCATION

BY JESSE FEIRING WILLIAMS

Professor of Physical Education, Teachers College, Columbia University

Definition of terms. There is confusion in the use of the terms health education and physical education.[1] The present interest in health, with true adolescent fervor, has claimed in some places an all inclusive field and the motor and character training of physical education has been included erroneously within health education along with health instruction, medical inspection, nursing service, and school sanitation. It is the plain truth of the matter that the term physical education is more preferable if an all inclusive term is to be employed, but the objectives of health education are so clearly health, and those of physical education so clearly of a developmental skill and educational character that the combined term, health and physical education, should be used for these phases in the school program. Careless use of the terms is responsible for much faulty organization of programs and absurd statement of aim and objectives.

Some of the confusion in terminology arises out of the recent emphasis on health. Unfortunately, there was little interest in the health of school children until clowns and

[1] J. F. Williams, *Principles of Physical Education* (W. B. Saunders Co., 1927). Preface.

fairies were used to dramatize the idea. Clowning the health act was not a permanent card, however, and these mountebanks of the stage and circus have been retired. The "make-up" character of this influence, however, has not been always evaluated. It is not strange, therefore, that many curious ideas should prevail regarding the nature of health. Teaching health to children with clowns is bound to leave some of the grease paint and sawdust on the ideas of the adults who arrange the properties.

Definition of health education. Health education in the schools may be defined as the procedure employed in supervision and teaching to help children to live healthfully.[2] Healthful living is to be fostered by all the agencies in the school. The teaching of reading should proceed in such fashion that the child may function best in all the adjustments of eye, voice, and bodily posture, but the unique, characteristic contribution of reading prevents the inclusion of reading in health education. In similar fashion, physical education is not to be regarded as health education.

Definition of physical education. The central problem in physical education is the development or education of children through motor activities. This education has four aspects: (1) The development of the organic powers during the period when the play motive is strong; (2) The development of bodily skills and functions in relation to the play, recreative, utilitarian, and æsthetic values in living; (3) The development of wholesome attitudes toward play and recreation so that these phases of living will become an integral part of living; and (4) The development of standards of conduct and behavior representative of the best social and moral values of the time. Clearly, physical education, through its physical activities may pro-

[2] J. F. Williams, *Personal Hygiene Applied* (W. B. Saunders Co., third edition, 1928), pp. 17-27.

mote healthful functioning, but its unique and characteristic contribution to a fourfold development prevents its devotion to a purely health motive.

Hence physical education may be defined as the development (another name for education) of the individual through motor activities that will contribute to organic power, functional skills, attitudes favorable to play or recreation, and desirable social and moral conduct.

Aim of health education. The aim of health education in the school is to provide a wholesome physical environment, to supervise the child's health, to teach habits, skills, facts, and attitudes favorable to health.[3]

In this statement of aim it will be noted that the practical aspects of the program are indicated, and furthermore, that an important portion of it is an administrative and supervisory function. The child is not normally interested in health and it is not wise to have him become so. The aims of adults for children may not be satisfactorily appropriated by children for themselves. The effort to

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[3] The aim of health education as given in the Report of the Joint Committee on Health Problems in Education is as follows: (1) To instruct children and youth so that they may conserve and improve their own health. (2) To establish in them the habits and principles of living which throughout their school life, and in later years, will assure that abundant vigor and vitality which provide the basis for the greatest possible happiness and service in personal, family, and community life. (3) To influence parents and other adults through the health education program for children, to better habits and attitudes, so that the school may become an effective agency for the promotion of the social aspects of health education in the family and community as well as in the school itself. (4) To improve the individual and community life of the future; to insure a better second generation, and a still better third generation; a healthier and fitter nation and race. *Health Education: A Program for Public Schools and Teacher Training Institutions,* Report of the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association with the Coöperation of the Technical Committee of Twenty-seven.

foster attitudes that will favor healthful practices by children is important, but such attitudes should not seek health as an end but only as a means to adventurous, spirited play and competent, worthy work.

The central problem in health work in the schools is not supervision of the school plant, correction of physical defects, or teaching of health knowledge, but to get children to live at their best. Health is not to be viewed as an expression of sanitary environment, freedom from physical defects, or abundant health knowledge. It is a way of living. To make sure that the way may be the best way, supervision of environment, correction of defects, and health teaching are employed. The mechanism, however, should never be mistaken for the reality.

Aim of physical education. The aim of physical education is to offer an opportunity for the child to act in situations that are physically wholesome, mentally stimulating and satisfying, and socially sound. The child is equipped by nature to engage in many natural physical activities. He requires only an opportunity. Adequate opportunities for physical education will include physical facilities, leadership, and supervision so that the activities may go on. From the school's point of view, supervision involves the practical conduct of the activities directed to secure wholesome physical effects, permanent attitudes favoring play and recreation, and desirable social and moral conduct.

Significant contrasts in the two aims. It will be seen that health education and physical education aim at distinctly different goals. Education does not go on in watertight compartments, and some desirable moral traits may be developed through health education, and some health values may be secured through physical education, but the unique and distinctive qualities of the activities define the aims.

From the standpoint of supervision the differences be-

tween the two are well marked. Normally the child is not interested in a healthful environment, cleanliness of the body, balanced diet, adequate rest, correction of defects, or avoidance of infection. In fact by nature he prefers close, poorly ventilated places, dirt upon his body to washing himself, eating with his hands; following appetite, he seeks to get what he wants when he wants it. Health education is an aspect of education seeking to make the school a sanitary place in which to work and play, the school program itself hygienic and wholesome, the spread of contagion difficult, the detection and correction of physical defects possible and the learning of health habits, facts, and attitudes easy and permanent. The conspicuous part of health education, then, is supervision of the school plant and the school child; the teaching of health is a teaching function and supervision of this bears the same relation as supervision in general does to all teaching.

On the contrary, physical education deals with activities toward which the child has a natural urge. He is driven by his inner impulses to engage in these things. Thus, he wants to chase and be chased. The rôle of supervision in physical education, then, is to see that he has an opportunity for these natural developmental activities, that they may contribute to wholesome development, that they may go on with satisfaction, and that they may be conducted with reference to desirable standards of conduct.

Other views of these fields. This definite separation of the aims of health education and physical education is not everywhere accepted.

The old formal physical training in the schools failed to contribute to wholesome living, and the modern emphasis on health [4] sought to make this activity function more fully in real-life situations. Thus, in 1922 the Detroit Public

[4] "Cardinal Principles of Education," Bureau of Education Bulletin No. 35, Department of the Interior, Washington, D. C.

Schools included physical education under the program of health education. This change is indicated in the course of study for elementary schools [5] by the following statement:

The shift of emphasis from Physical *Training* to Health *Education* is so recent that it has taken place within the experience of most of the teachers who will use this course of study. It has come about as the direct result of the adoption of social efficiency as the goal of educational effort in place of the older aim of academic proficiency. Translated into more concrete terms, it means that the modern teacher will not be content *merely* to have her charges *know* that good health is essential to successful living, and *how* it may be attained. She will not consider her work complete until the children have actually *adopted for themselves* a health "ideal" and have actually begun to *modify their lives* in accordance with its transforming power.

In a recent report [6] on health trends in secondary schools, an analysis of fifty-three school programs was studied to determine the fields from which the directors were drawn. Of the fifty-three schools, only thirty-one were selected for analysis; it is reported that the others "were too indefinite for tabulation." However, considering the reported results, the following distribution is shown:

Physical Training [7]	11
General Education	10

[5] "Course of Study in Health Education, Elementary Schools," Board of Education, Detroit, 1922, p. 7.

[6] "Health Trends in Secondary Education," American Child Health Association, 370 Seventh Ave., New York City, p. 75.

[7] The use of the term *physical training* throughout this report shows either lack of understanding of what has happened since 1911 (Elliott, *The Organization of Professional Training in Physical Education,* Contributions to Education No. 268, Bureau of Publications, Teachers College, Columbia University, 1927, p. 18), or deliberate purpose to exalt the health field. The latter surmise seems somewhat justified by the comment following the above tabulation: "Physical educators, traditionally the health custodians of the schools, are being appointed to direct our (!) health education, this being considered a logical development of 'physical education.'"

Nursing	6
Home Economics	2
Biology	1
Medicine	1

Of course, any one familiar with the facts knows that the newer emphases upon health neither require elimination of the name "physical education" nor even find it desirable to wipe out the very large professional interest of physical educators. "It is an important and striking fact that children, in order to be 'fit,' to take part successfully in games and sports, will observe all rules of health. The college athlete in training is the familiar example of this."[8] Although some city school departments have changed the name *physical education* to *health education*, it is significant that the term *health education* in Pennsylvania has been changed to *health and physical education*. A recent field study[9] in New Jersey recommends that the name of the division in the office of the Commissioner of Education created by the Pierson Act should be known as *The Physical and Health Education Division*. Although there is not unanimous agreement with the definitions and descriptions of health education and physical education as given in the preceding pages, it is true that there is less tendency to abandon the term *physical education*. The combined term *health and physical education* is preferable.

Supervision of Health Education

The program of health education. The program of health education may be divided into two parts, that which is mainly administrative and that which is mainly teaching. These divisions indicate the emphasis. Teaching and

[8] *Health Education*, Report of the Joint Committee on Health Problems in Education, 1924, p. 52.

[9] "A Study of the Status of Physical and Health Education in the State of New Jersey," New Jersey Department of Education, Trenton, 1927, p. 6.

learning go on in the administrative function, and supervision is essential in the teaching function. To limit the use of the term "health education" to health teaching tends to restrict unduly the meaning of supervision and ignores the significant lessons learned through actual contact with sanitary equipment and actual experience with health officials. The writer has discussed this point at length elsewhere.[10]

The two divisions of health education may be stated as follows:

A. Health Service
   1. Administration of the school plant, and including the hygiene of instruction.
   2. Administration of the health examination, health protection, and health care as they affect the school child.

B. Health Teaching
   Instructions in habits, skills, knowledge, and attitudes that favorably influence health.

Health service. The central problem in health work in the schools is to aid children to live at their best. Health education is not merely the removal of adenoids, provision of pure drinking water, or a body of health facts. It is fundamentally a way of life. Living at one's best is conditioned by numerous things, such as heredity, environmental influences, ignorance of things to be done, and inability to follow the rules of health due to lack of motive, resources, or other factors. These conditions may be classified in three groups, environment, heredity, and personal effort. Health service attempts, through supervision of the school plant, to control favorably the environment, and through supervision of the child, to overcome defects and influences due to heredity or environment.

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[10] "Report of the Survey of the Educational System of the Philippine Islands," 1925, pp. 452-453.

Health service operates on various levels.[11] On the first level is the classroom teacher whose daily contact and intimate knowledge of the children constitute strategic items in health service. On the second level is the school official who has had some professional training in health work. This may be the school nurse, nutrition worker, or health education expert. On the third level is the specialist, the school physician or supervisor of health and physical education.

The classroom teacher may be a very important person in the conduct of health service in the school. Her opportunity is great but it is only an opportunity. Her usefulness is in direct proportion to her knowledge of common variations in health among children indicated by their early signs and symptoms of disease, a desire to conserve and improve the health of children, and some machinery through which she may operate.

The expert in health work and the school physician, or the health and physical education supervisor constitute the machinery through which the efforts of the classroom teacher may be effective and in addition carry the health service beyond what the classroom teacher may be expected to do.

Administration of the school plant. The health conditions of the environment present a variety of problems. The extremes are shown in the rural school and the urban school. In the former, absence of running water, heating by stoves, improper ventilation, and inadequate lighting are apt to be the outstanding problems; in the latter, overcrowding, lack of playground, and dusty air are often the chief handicaps. In small rural schools the teacher is responsible for the plant; in village and city school the prin-

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[11] Hoag and Terman, *Health Work in the School* (Houghton Mifflin Co., 1914).

cipal is the responsible officer. The desirable standards [12] must be known if these officials are to function effectively in this phase of supervision. The following comprise brief statements of significant items in supervision of the plant. For a more detailed and complete description the reader is referred to other references on this topic in the bibliography.

1. *Lighting.* Natural lighting is that provided by windows. Best practice requires that windows be banked on one side, arranged in batteries, and without blackboards between them. Classrooms should be lighted from the east or west. The glass area in northern states should be one-fourth the floor area; in the tropics one-fifth or even one-sixth is permissible, although in the Philippines window glass is not used at all and a native shell is substituted. This serves to keep out the intense glaring light.

Windows should reach within six inches of the ceiling and should have square tops. Since one-half the light comes through the upper one-third of the window, poorly illuminated rooms may be improved by placing shades to roll from the bottom. The windows should be about three and one-half feet from the floor.

The color schemes in rooms are important in lighting. Wood of a dark, dull finish, ceilings white, and walls a creamy gray give a satisfactory combination. Reds, oranges, and browns should be avoided.

Artificial lighting is that afforded by electricity or other light units. It is required by the increasing uses of the school building for community purposes. Units should be selected and placed to minimize glare; shiny surfaces in furniture are to be avoided. Indirect lighting units cover the source of light and secure illumination by reflection from the ceiling. The efficiency of this type wanes rapidly

[12] M. B. Ayers, J. F. Williams, and T. D. Wood, *Healthful Schools* (Houghton Mifflin Co., 1918).

and semi-indirect units are now considered to be more desirable.

2. *Water supply.* Sources of water from springs and wells require supervision both as regards examination to determine purity and control to prevent contamination.[13] Individual cups are required by law in over half the States. Careful and persistent supervision is essential to make this effective. Fountains are essential equipment if running water is available and may be installed in pump equipment for wells. In fountains, it is important that children cannot place fingers over the opening and that the water stream flows to one side rather than vertically upward.

Fountains should be of a height suitable to the children who use them. There should be one fountain for every seventy-five or one hundred children.

3. *Lavatories.* Sanitary equipment is essential if children are to learn desirable health practices.[14] One of the most important health habits is washing the hands before eating and after using the toilet—and yet few schools are adequately prepared to teach this habit properly. Soap should be provided in liquid or powdered form and individual towels should be furnished. Paper ones are satisfactory. For kindergarten and first-grade children, lavatories should be 18 inches high; grades one to six, 18 to 28 inches; grades seven to nine, 25 to 30 inches; and grades ten to twelve, 27 to 31 inches.

4. *Toilets.* Toilet rooms should be well lighted, clean, and exposed to sunshine. The walls should be light colored to reflect light and reveal the presence of any dirt that may be present. The greatest single problem in supervision of the toilets is to secure adequate cleanliness. There

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[13] J. F. Williams, *Hygiene and Sanitation* (W. B. Saunders Co., 1927), pp. 245-251.

[14] J. Broadhurst, *Home and Community Hygiene* (J. B. Lippincott Co., 1918).

should be thorough cleaning every day. Many schools neglect to provide toilet paper. There is no excuse for such disregard of proper sanitary habits. Height of toilet seats for grades one to six should be 10 to 12 inches and for junior and senior high schools 12 to 14 inches.[15]

5. *Heating and ventilating.* The problem of wholesome indoor air for schoolrooms is complicated. There are the older notions about the impurity of carbon dioxide, the elaborate ventilating systems installed in schools that fail to work properly, and the effort to save heat in winter time by keeping the windows closed. The following points are well established and should be used as guides in supervising the school plant:

1. The desirable temperature for the classroom is 68° to 70° F. For gymnasia the temperature may be 60° to 65° F.
2. The air should be moist. Outdoor air is the standard. Cold outdoor air heated to a temperature of 70° increases its capacity to hold moisture. Hence, under ordinary conditions, the air of schoolrooms is dry and readily takes up moisture from the mucous membranes of the pupils. Ventilation by open windows and heating by radiators in the room with ducts for escaping air offer the best examples of air conditioning in this respect.
3. Air should be moving and not still. To bathe the body with new air that readily permits evaporation of body heat is vital to good air conditions. Again, open windows are indicated.[16]

6. *School housekeeping.* Janitorial service is unstandardized and hence shows great variety in quality. Supervision of janitors is to be improved by two procedures: first, grant of authority to some person (preferably the super-

[15] M. W. Thomas, *Public School Plumbing Equipment* (Bureau of Publications, Teachers College, Columbia University, 1928).

[16] "Ventilation of School Buildings," Report of the Subcommittee on Ventilation of the Joint Committee on Health Problems in Education, 1925.

visor of health and physical education) who shall hold the janitors responsible for certain services; and second, precise and reasonable standards established by the supervisor for the janitor. These standards should not be arbitrary, but arrived at by conference, improved as the janitors become more expert and better informed, and built up over a period of years to secure clean, wholesome school conditions in the plant. These standards will relate to cleaning of floors, sweeping and dusting, scrubbing, cleaning walls, windows and blackboards, care of toilets, and temporary repairs.

7. *School lunch.* The school lunch should be supervised by the department of health and physical education, cooperating with the domestic-science department. Standardization of equipment, personal service, food menus, recipes, extension of service to new schools, and proper publicity are items in this supervision.

Administration of the health survey, health protection, and health care. The second aspect of health service in health education is supervision of the child's health. Supervision should go on from the day of birth, and the preschool years are of the greatest importance, but the school is concerned with the matter only from the time of entrance to school. The entrance of the child to school should be marked by a very careful examination to detect defects and deficiencies that may be corrected and his continuance in school should be conditioned by their removal. During his years in school, this supervision of his growth, development, and physical condition should continue. There are, then, three aspects of this supervision of the child's health.

1. *The health survey.* This involves a daily *morning inspection* for signs of disease and for a check on habits of personal hygiene, and a more thorough annual *health examination.* The inspection is daily; the examination an

annual survey. The content of the health examination will include the following items: height; weight; nutrition; development; eyes; ears; teeth; tonsils; adenoids; skin; spine; feet; muscular, circulatory, respiratory, and nervous systems. Anything less than this is incomplete and unsatisfactory. The history of the child is an important part of the examination and should include both family and personal items. The content of the health examination may be quite inadequate. This fact was observed in the Lynn, Massachusetts, School Survey (1927) as given below:

> In the first place there is no adequate record of the work done. The Health Department has not published reports since the war and even the superintendent of schools does not receive a report of the "medical inspection" carried on in the schools. In the second place, the work is largely an inspection service. It was common practice in schools some years ago to be satisfied with a mere record of the number of physical defects in children, but modern school systems recognize to-day that the purpose of the examinations is to secure corrections. Observation of the children in the classrooms in February of 1927 gives one an impression of widely prevailing defect. In contrast with Filipino children in the schools of the Philippine Islands it should be noted that the children in many of the Lynn Schools appear less healthy than the children throughout all sections of the Philippine Islands. It is probably a true statement that the citizens of Lynn have little idea of the extent of physical defects in the children who in only a few years will be citizens of Lynn.

The deficiency in a health survey of school children is frequently a matter of the health examination. The following forms show desirable history and examination blanks.

HORACE MANN SCHOOL

Health Blank to Be Filled by Parents

Date .....

Name of Pupil .....

Address .....Tel. No. .....

Name of parent or guardian .....

Nationality of parents F.....M.....

Date of birth of pupil.....Place of birth.....

No. of older brothers.....Older sisters.....

No. of younger brothers.....Younger sisters.....

Order of birth .....

Health of child as babe.....

Check any of the following conditions child may have suffered from and state year:

Diphtheria .....Complications .....

Scarlet Fever .....Complications { Ear ..... / Heart ..... / Kidney .....

Measles .....Complications { Ear ..... / Lungs ..... / Heart .....

German Measles .....

Chicken Pox.....Mumps.....Whooping Cough.....

Rheumatism .....Heart Affections.....

Tonsilitis .....Frequent colds .....

Nervous Conditions .....St. Vitus Dance.....

Accidents .....Injuries .....

Operations { Adenoids ..... / Tonsils ..... / Rupture .....

Any permanent effect from these .....

Name any other illnesses child has had.....
.....
.....
.....
What weaknesses or tendencies to ill health exist at present....
.....
Does pupil keep mouth open or lips apart during day or night
.....
Hour of going to bed.....Hour of rising.....
Is sleep quiet or restless.....
Is appetite good, medium, or poor.....
Number of hours out of doors daily.....
Favorite outdoor game or exercise.....
Does child prefer outdoor games or reading for recreation.....
.....
Average time for home study.....
Studies or lessons taken out of school and time devoted to each
.....
Habit of bowels.....
Dates of successful vaccinations.....
Date of last attempt at vaccination.....
Remarks: .....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

Typical Examination Blank

Name ..... Date of Birth.....
Last First Middle

	19	19	19	19	
Date	Mo. Da. Hr.	Mo. Da. Hr.	Mo. Da. Hr.	Mo. Da. Hr.	Follow Specially
Grade					
Age					
Weight					
Height					
" sitting					
Girth Chest, full expir.					
" " " inspir.					
Lung capacity					
Strength, right forearm					
" left "					
Hearing, right ear					
" left "					
Vision, right eye					
" left "					
Astigmatism, R., L., B.					
Vision with glasses, R.					
" " " L.					
Condition, right eye					
" left "					
Speech defects					
Teeth, caries					
" tartar					
" eruption					

Notes

TYPICAL EXAMINATION BLANK—*Continued*

No. ..... School .....

	19	19	19	19	
Nose					Follow Specially
Throat					
Adenoids					
Tonsils					
Glands, cervical					
" thyroid					
Lungs					
Heart, rate					
" condition					
Hernia					
Scar, vaccination					
" operation					
Skin					
Posture					
Shoulders					
Abdomen					
Spine					
Foot, right					
" left					
Nervous condition					
General "					
Nutrition, height					
" weight					
Adol.					

Notes

Determination of the health of children should include, then, a daily procedure of inspecting children for the obvious signs of variation from normal, and a yearly procedure that seeks through a more complete inquiry to detect their functional condition. These two procedures are known generally as the morning inspection and the annual health examination.

The morning inspection. The methods of choice are dictated by the need for economy of time and teaching of health habits. The teacher may ask the children to place the hands on the desk and as she passes between the rows of seats she will observe,

1. General cleanliness of clothing, hands, and face.
2. Signs of communicable disease:
   (*a*) Running nose
   (*b*) Rash
   (*c*) Change in usual appearance of health, for example, flushed face, pallor
   (*d*) Cough

The annual health examination. The methods of the examination should be determined by the results desired. The objectives are detection and correction of defects, education of parents and children in health care, and favorable attitudes by children toward scientific methods. Hence certain essentials are to be provided.

First, the child should be stripped for examination. Procedures in examination conducted on any other basis are invalid and partial. This requirement necessitates a suitable place for the examination, adequate time, and competent staff. Subsequent yearly examinations need not be so complete for all children, although those with certain defects will need to have this type of examination repeated at intervals.

Second, the mother or father should be present for the examination. Since the correction of defects is one conspicuous goal of the examination and such results can only be secured by parental coöperation, the vital importance of parental attendance is indicated. While the school is responsible for supervision of the child's health, this cannot be effective without the

education of the parents in their coöperative responsibilities.

Third, it is most important that children be managed in this procedure with reference to pedagogical principles. To put children through an examination conducted as the mechanical inspection of moving parts in a machine, is to ignore vital elements in the problem. Children are more than gobs of protoplasm with adenoid growths. It is desired, most of all, that the procedures of the examination should illustrate appreciation of mental and emotional training in relation to bodily defect and should develop wholesome attitudes toward scientific health care.

Responsibility for the examination. Clearly, responsibility for the health examination should reside in the school authorities rather than in an agency outside the school.[17] The Board of Health is unfitted by training and inclination to conduct such a supervisory function in education and hence the organization of the staff for this work should be under the Board of Education. The work of the examination should be divided between school nurses or other health experts and the school physician. This division is technical and to be organized by the responsible officer of health education.

2. *Health protection.* Protection of the health of school children has two phases, protection of all children from intercurrent diseases, and protection of the individual by prophylactic measures. In the former, the classroom teacher plays an important rôle; in the latter, the school nurse and school physician are responsible.[18]

The diseases that commonly occur in children of school age show a sharp rise in the fall term coincident with assembly for school and continue during the winter months at a rate higher than that of the vacation period of summer. These diseases, measles, chickenpox, mumps, scarlet fever, and diphtheria are to be controlled in part by early recognition and isolation of children infected and exposed.

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[17] *Baltimore School Survey,* Vol. 2 (1920-1921), pp. 264-265.

[18] Wood and Rowell, *Health Through Prevention and Control of Diseases* (World Book Co., 1926). *See also* C. W. Hetherington, *School Program in Physical Education* (World Book Co., 1922), p. 128.

Hence the importance of alertness and ability in the classroom teacher to detect the early signs of abnormality and prompt reference of suspected children to competent authorities. Education of the classroom teacher in the early signs and symptoms of communicable diseases is the responsibility of the supervisor of health education. Education of parents in the early recognition of disease and coöperation with the school are important. Parent-teachers' associations may be helped to become interested in such projects.

The second aspect of health protection includes the protective measures developed by scientific medicine for the prevention of disease by establishment in the individual of artificial immunity. These measures include (*a*) vaccination against smallpox, (*b*) Schick and Dick tests for sensitiveness to diphtheria and scarlet fever, (*c*) toxin-antitoxin for protection against diphtheria. In some places, it is important to employ the typhoid inoculation but this is not necessary in all communities.

In recent years, the recognition of a causal relationship between simple goiter and iodine deficiency in water and food supplies has led to protective measures in localities where iodine content of water and food is low. These regions,[19] notably the Great Lakes districts and the northwest, show in their schools various supervisory measures for protection of children in these areas.

The methods of health protection are to be in the hands of the school physician or supervisor of health education acting through physicians. They require consent of parents in the administration of protection to children.

3. *Health care.* The third division of supervision of the child's health includes measures for first aid to children and requires facilities in equipment for this service. The

[19] J. F. Williams, *Personal Hygiene Applied* (W. B. Saunders Co., third edition, 1928), pp. 269-275.

machinery of exclusion of children from school, isolation of children of certain rooms, and admission to school after illness are supervisory functions organized by the supervisor of health and physical education [20] through the principal's office. Daily inspection by the teacher for cleanliness is a part of health care.

The supervisory relationships of the different aspects of health service are shown in table on page 644.

Health teaching. The teaching of health is one of the most difficult projects in the school. What is wanted most is thorough-going practice of the knowledge gained by the child and this is so contrary to the traditional view of the function of the school that to get anything more than verbal acquaintance with health material is exceedingly difficult. Too frequently the teacher regards health lessons as she does spelling lessons—to be learned and reproduced correctly when called for by the teacher. The following from the Lynn School Survey [21] show the hazard in this direction:

> The teaching of health, however, should never proceed as an academic exercise, unrelated to the other significant services of health education. The educational delusion that knowledge of the fact alone gives power over the situation represented by the facts is nowhere better illustrated than in this matter of health

[20] In a well developed, comprehensive plan of health and physical education, the supervision of the teacher's health would be a part of the general program for the school. L. M. Terman, *The Teacher's Health* (Houghton Mifflin Co., 1913). J. F. Rogers, "The Health of the Teacher," School Health Studies No. 12, Bureau of Education, Department of the Interior, Washington, 1916. L. I. Dublin, "Physical Disability of New York City School Teachers," Metropolitan Life Insurance Co., 1916. G. E. Carrothers, "The Physical Efficiency of Teachers," Contribution to Education No. 155, Bureau of Publications, Teachers College, Columbia University, 1924.

[21] *Report of the Survey of the Schools of Lynn, Massachusetts* (Bureau of Publications, Teachers College, Columbia University, 1927), p. 321.

SUPERVISORY RELATIONSHIPS IN HEALTH SERVICE

Items	Responsible Officers	Objectives Desired	Methods Required	Coöperating Persons or Agencies
Supervision of Plant.	1. Supervisor of Health Education. 2. Principal of School.	1. Sanitary School Plant. 2. Hygienic Program.	1. Constant Supervision. 2. Replacement of Worn-out Equipment. 3. Adjustments of Programs.	1. Teachers. 2. Children. 3. Board of Health.
Supervision of Child's Health. Health Examination, and Morning Inspection.	1. School Physicians. 2. School Nurses. 3. Classroom Teachers.	1. Detection of Defects. 2. Correction of Defects. 3. Early Detection of Abnormalities and Formation of Health Habits.	1. Thorough Examination of Child at School Entrance. 2. Yearly and Daily Check-up. 3. Follow-up.	1. Parents. 2. Children. 3. Teachers. 4. Clinics. 5. Hospital. 6. Welfare Organizations.
Health Protection.	1. School Physicians. 2. School Nurses. 3. Teachers.	1. Control of Contagion. 2. Development of Artificial Immunity.	1. Daily Observation. 2. Immunization.	1. Parents. 2. Board of Health.
Health Care.	1. School Nurse. 2. Teachers. 3. Principal. 4. School Physician.	1. Prevent Infection. 2. Relieve Injury. 3. Cleanliness. 4. Control of Those with Communicable Disease.	1. First Aid. 2. Daily Inspection. 3. Exclusion, Isolation, and Control of Admission.	1. Parents. 2. Board of Health. 3. Parent-Teacher Associations.

instruction. Health in the schools is in danger of becoming a subject of study. As such, it will lose all its vitality, degenerate into questions and answers, and fail utterly of its essential purpose.

The teaching of health will include four emphases, no one of which is exclusive of the others but all of which are significant at certain periods. These are health habits, health skills, health facts, and health attitudes. The older hygiene in the schools dealt largely with anatomy and physiology and stressed knowledge. The new view recognizes a place for information but stresses practice.

Health habits are formed with difficulty because of their artificial character and if formed at all they must be developed in the early years. To seek the formation of health habits in college students or adults is chimerical and claims in that direction are mainly aspirational. At this late date, little can be done. A cue from the Jesuits in religious education is helpful in education in health habits.

Health habits are to be stressed, then, in the first six grades. Those suitable for the kindergarten should be begun there and when it is reasonable to expect a habit to be established, its presence in the child should be required. The teacher expects certain mental habits or habitual responses in reading, arithmetic, spelling, and other phases of school life at different grade levels. There should be set up in each grade standard accomplishments in health. When set up, they should be considered essential for advancement in grade just as standard performances in other fields are regarded as essential.

One difficulty in realization of standards is the fact that most of the habits that children should acquire are rarely, if ever, operative in the school environment where so much effort is given to forming them. The problem is essentially a home problem and only by coöperative effort can the school assist here. Suggested standards of behavior are

given for the kindergarten and Grades I, II, and III in the Joint Report of the Committee on Health Problems in Education.[22]

Health skills are acquired later than habits. They represent conscious efforts to attain some facility. Thus chewing one's food thoroughly may be considered a habit but selecting proper food from a variety of items is a health skill. Health skills can be checked as readily as health habits or other standard performances. One gains in health skills from year to year. The desire to perfect them comes from the acquirement of favorable attitudes toward health and rests upon some knowledge of health. There are no standards for this group of skills. The accomplishments in this direction should be standardized.

Health knowledge and attitudes are to be emphasized chiefly in the junior and senior high school but even in the upper grades these phases are to be introduced and attitudes fostered, of course, from the very beginning of school.

The health knowledge taught in the grades should be organized around the interests of the boys and girls who are to learn it. Training for teams, getting ready for camping and hiking experiences, the hygiene of numerous activities such as swimming, skating, and running, afford a rich background for the organization of instruction in foods, sleep, air, sunshine, play, mental hygiene, colds, infections, and numerous other topics. It should be clear, of course, that no artificial division of habits, skills, facts, and attitudes is suggested here. Some knowledge of health will be taught in the kindergarten and in the health examination, and some skills will be formed in the sixth grade. Again, it may be noted that education does not go in water-tight compartments. It is meant, however, that relative emphases

[22] *Health Education; A Program for Public Schools and Teacher Training Institutions*, 1924, pp. 90-94.

should be given to certain age groups in accordance with interests and capacities. Suggestions for topics in a course of study in health are given in the Report of the Joint Committee previously referred to. These suggestions are on pages 89 to 124 of that report.

The supervisor in charge of the teaching of health in the school should utilize all the available and appropriate sources in the school for health lessons. Too much should not be asked of other departments and the unique and characteristic contributions of history, geography, or physical education should not be lost or diverted for health purposes. The supervisor can render the greatest service by stimulating the enthusiasm of classroom teachers for health instruction and providing facilities for improving their skill and knowledge.

It is recommended in the Report on Health Education by the Joint Committee on Health Problems in Education that the supervisor be responsible for the following:

1. Providing teachers with the best known definite standards and tests of child health, teaching the use of same, and methods of evaluating results of work.
2. Assisting teachers to analyze the health needs of their classes, so as to produce positive results in actions, both through correlation of health instruction with the total of instruction, and through effective use of special methods, as weighing, inspection, etc.
3. Arranging extension courses in subject matter, to be given by those specialists in the school system or the community, best fitted to help the teachers.
4. Anticipating teachers' needs for materials of instruction, books, charts, supplies, etc., supplying same and stimulating inventiveness in use of experiments, trips, etc.
5. Arranging for interschool visits to teachers who are carrying on successful health teaching and for conference with these teachers.
6. Working out for her department definitely stated objectives, giving demonstration and lessons when needed.

Equipment for health education. The two divisions of health education, called health service and health teaching, constitute two lines of endeavor through which the school seeks to maintain wholesome conditions in the school, to detect variations from the normal and to correct remediable conditions, and to teach health. Desirable equipment, facilities, and procedure in these divisions may be outlined as follows:

I. To provide a hygienic school plant
   1. School building, fireproof type, with modern construction in lighting, heating, ventilation, lavatories, seating, etc.
   2. Adequate school grounds—a minimum of eight acres for elementary school; a minimum of one hundred square feet per child.[23]
   3. Drinking fountains in corridors of school and on playground.
   4. Toilet paper, soap, hot water, and paper towels in all schools.

II. To maintain a hygienic school plant
   1. Daily cleaning of school building with frequent scrubbing and mopping.
   2. Repair of torn blinds, broken seats, hand rails, and other equipment.
   3. Painting and decorating to remove defacing marks of all kinds.
   4. Special attention to lavatories and toilets.
   5. Boards and chalk trays should be cleaned to remove all dust. Occasoinal washing will be necessary.

III. To organize and conduct a hygienic program
   1. Length of school day should be considered. There is considerable expert opinion in favor of the single session. Warrington of Leipsic (Zeitschrift für Tuberculose, April, 1926) finds that prolonged school hours

[23] G. D. Strayer and N. E. Englehardt *Standards for Elementary School* (Bureau of Publications, Teachers College, Columbia University, 1923). *See also* J. F. Williams, *Principles of Physical Education* (W. B. Saunders Co., 1927), Ch. ix.

lower resistance to infection. "Keeping still and keeping well do not go hand in hand" and when home work is included, the growing child has a long confining day. He concludes that four hours should be the maximum for the elementary school and five hours for the upper grades, with no home work.

2. Recess period in middle of morning for a minimum of fifteen minutes.
3. After-school play periods out of doors should be organized.
4. Individual pencils should be used.
5. Books should be selected with reference to paper, size of type, and page arrangement.
6. Management of classes should be such as to permit of freedom of movement of individuals. Self-discipline should be sought.
7. After-school work for disciplinary purposes should be avoided as far as possible. To punish children by writing outlines after school is over, when they should be out of doors playing games or engaging in creative work, is a physiological sin of the first magnitude.

IV. To provide for health examination of children

1. A room in the school where examinations may be made. This should have a linear space of at least twenty-four feet so that tests of vision may be made.
2. The floor should be marked with painted lines to facilitate eye tests.
3. Rattan couch for examination of the child in reclining condition.
4. Table and chairs for examiners and assistants.
5. Wooden tongue depressors.
6. Sanitary waste disposal can.
7. Examining instruments such as stethoscope, acumeter, watch, etc., will be the personal property of the examiner.

V. To provide facilities for first aid

1. The examination room may be used for first aid services.
2. The room should contain the following:

   Furniture

Two couches (rattan)
One table
Two chairs (wood)
Closet
Four woolen blankets
Two hot-water bags
One ice bag
Two granite basins
One dozen clean towels
Splints for broken bones
Medicine case
Iodine or mercurochrome
Aromatic spirits of ammonia
Toothache plasters
Bicarbonate of soda
Alcohol
Mustard
Olive oil
Clinical thermometer
Surgical case
Sterile absorbent cotton
Sterile gauze
Sterile bandages
Zinc oxide adhesive plaster
Sterile vaseline in tubes
Tincture of iodin
Dressing forceps
Surgical scissors
Safety pins
Book on the treatment of emergencies

Measurement of results in health education. In supervision of the plant, the results are to be measured in effectiveness with which the sanitation of the environment is maintained. The Strayer-Englehardt Score Card [24] for school buildings represents one method for measurement in supervision, although it deals mainly with standards of construction.

Results in supervision of the health of school children

[24] G. D. Strayer and N. L. Englehardt, *op. cit.*

are to be expressed in terms of the correction of defects secured, the morbidity rates of communicable disease and the extent of protective inoculations. The following from the Lynn School Survey [25] shows relatively worthless health examinations: "Neither the Commissioner of Health nor the Superintendent of Schools knows how many corrections have been secured."

The percentage of corrections is not always an accurate standard of measurement because detection of the more remediable cases by one examiner may result in apparently better work due to neglect of cases more difficult to treat. The problem here is illustrated by the following from the Baltimore School Survey: [26]

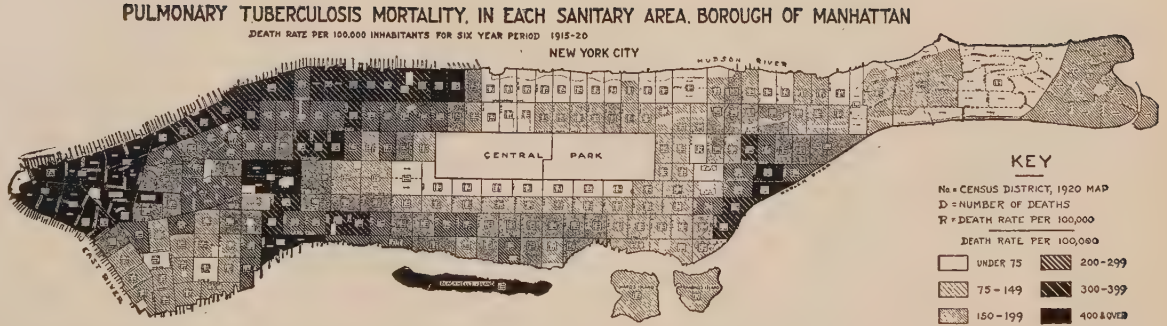
PHYSICAL DEFECTS REPORTED IN 1913

Examiners	Eye Strain	Pediculosis	Teeth	Adenoids	Mental Deficiency	Tonsils	Malnutrition	Rhenitis	Blepharitis	Adenitis
A–B....	404	132	970	781	122	713	345	147		
C–D...		1,192	795	1,401		1,505		418	138	7
E–F....	322	365	1,274	433		244	310			
G–H...	70	521	185	571	33	675	27		216	25
I–J.....	187	108	817	495		827	312	106		168

I-J with 108 cases of pediculosis, 827 cases of tonsils, and 495 cases of adenoids record 168 cases of adenitis while C-D with 1,192 cases of pediculosis, 1,505 cases of tonsils, and 1,401 of adenoids, record only 7 cases of adenitis. In 1913, the G-H team was most efficient in securing cures and improvements.

[25] *Report of the Survey of the Schools of Lynn, Massachusetts* (Bureau of Publications, Teachers College, Columbia University, 1927), p. 314.

[26] *Baltimore School Survey*, Vol. 2 (1920-21), pp. 260-261.


PULMONARY TUBERCULOSIS MORTALITY, IN EACH SANITARY AREA, BOROUGH OF MANHATTAN
DEATH RATE PER 100,000 INHABITANTS FOR SIX YEAR PERIOD 1915-20
NEW YORK CITY
HUDSON RIVER
CENTRAL PARK
EAST RIVER
KEY
No = CENSUS DISTRICT, 1920 MAP
D = NUMBER OF DEATHS
R = DEATH RATE PER 100,000
DEATH RATE PER 100,000
UNDER 75
75 - 149
150 - 199
200 - 299
300 - 399
400 & OVER

MORTALITY FROM PULMONARY TUBERCULOSIS IS SHOWN BY SHADED AREAS. THE KEY INDICATES THE RATE.

Compiled from Reports, New York City Department of Health and New York City 1920 Census Committee. Reproduced by courtesy of Mr. G. J. Drolet, Statistician, Research Service, New York Tuberculosis Association.

They record only 27 cases of malnutrition, 33 cases of mental deficiency, 70 cases of eye strain, and 25 cases of adenitis. These represent cases in the present organization of health care of children that are difficult to cure or improve. In comparison with other defects in their group they have reported a high proportion of tonsil and adenoid cases. These, by operation, can be called cured. The efficiency of any medical inspector and nurse must be measured in part, therefore, in terms of the kind of cases recorded as defective.

The prevalence of communicable disease in a school is a limited measurement of the effectiveness of health supervision. Severity of an epidemic in one locality may make the health work in one place compare unfavorably with that in another that for some reason has missed the infection. All the elements in epidemiology are not known and hence no single standard such as morbidity rate alone is fair. The supervisor of health and physical education will wish to determine, if possible, why any one school shows more cases of communicable disease than another. The difference in geographical distribution of communicable disease is indicated in the illustration on page 652.

The effectiveness of health protection through immunization measures is well shown by comparison of vaccination against smallpox and the occurrence of smallpox, and the use of Schick tests and toxin-antitoxin and the prevalence of diphtheria.

The value of smallpox vaccination is indicated by numerous reports.[27] The effectiveness of protective measures in combating diphtheria is shown in a striking way by the work of the New York State Department of Health at Auburn, New York. In 1922, a campaign was started to immunize the child population of Auburn against diphtheria by the use of toxin-antoxin. In that year (1922) Auburn, a city of 35,000, had 97 cases and 13 deaths. The

[27] J. F. Williams, *Personal Hygiene Applied* (W. B. Saunders Co., third edition, 1928).

following table shows the morbidity and mortality in diphtheria for two years preceding and five years after this work:

DIPHTHERIA IN AUBURN

Year	Cases	Deaths
1920	104	17
1921	131	14
1922	97	13
1923	47	4
1924	22	1
1925	20	0
1926	8	0
1927 to Oct. 1st	9	0

Measurement of the results of teaching health knowledge is relatively easy, but it is extremely difficult to test habits, skills, and attitudes. The Gates-Strang Health Knowledge Test [28] is one of the best scales for scoring results in the field of health knowledge. Devices for measuring habits and skills are numerous but without objective quality. Health-habit records, score cards, and score marks are characterized by a high degree of unreliability. Attitudes are to be measured in terms of conduct but there is little objective procedure for this available at the present time.

The Report [29] of the Joint Committee on Health Problems in Education suggests the following methods:

1. Keeping daily records, score cards, etc., upon which health-habit performance is regularly checked, throughout the year.
2. Keeping daily records for a short period of time, say a week, at the beginning and end of each term, with comparison of results.

[28] *Gates-Strang Health Knowledge Test* (Bureau of Publications, Teachers College, Columbia University, 1926).

[29] *Health Education, op. cit.*, p. 151.

3. Comparison of weight records, illness records, attendance records, and other objective evidence of the child's state of health, with his habit records, to serve as a partial check on his accuracy in reporting. It must be understood that such records are only a partial check in health-habit performances. For example, a child may perform all health habits regularly, and still remain underweight if there is some underlying cause for the condition of malnutrition.
4. Observation and questions by the teacher in school, for example, in the lunch room, on the playground, and during home visits.
5. Child's report at end of semester regarding how he has improved.[30]

Difficulties encountered in health education. In supervision of the plant, the common faulty conditions are general—lack of cleanliness of floors, desks, and equipment. The toilets need particular attention, as a rule, to secure a decent standard of cleanliness and freedom from defacing marks. In schools where running hot water is not available for washing the hands, the lavatories are usually in a very unsanitary condition. Hot water, soap, and towels tend to improve not only the sanitary condition of the place, but, what is more important, hygienic practice.

In supervision of the child's health there are many handicaps. They may be listed as follows:

1. Lack of a standardization clinic for all medical examiners to secure uniform diagnoses.
2. Absence of parents or parent from the examination.
3. Overcrowding of the schedule in examinations giving a superficial result.
4. Failure to interest the coöperative effort of children due to faulty methods in procedure.
5. Cataloguing of defects but no effective means for treatment and no adequate follow-up.
6. Failure of teachers to know, to recognize, and to report early signs of disease in children.

[30] "Report of the Lake Mohawk Conference," A Project in Junior-High School No. 2, Trenton, N. J., 1922.

In health teaching the one error of outstanding significance is the teacher's failure to recognize the unique purpose of health instruction. Commonly she regards health lessons as things to be learned and fails to illustrate, emphasize, and require thorough-going practice. Reaction against the old methods of anatomy and physiology is justified but the modern emphasis on nutrition and mental hygiene may be just as academic.

Keeping up with the literature of health education. The following titles are selected from an extensive list, as the most valuable:

General References

ANDRESS, J. M., *Health Education in Rural Schools* (Houghton Mifflin Co., 1919).

———, *The Teaching of Hygiene in the Grades* (Houghton Mifflin Co., 1918).

BAKER, S. J., *Child Hygiene* (Harper & Bros., 1925).

DANSDILL, T., *Health Training in Schools* (National Tuberculosis Association, New York, 1923).

WILLIAMS, J. F., *Hygiene and Sanitation* (W. B. Saunders Co., 1927).

———, *Personal Hygiene Applied* (W. B. Saunders Co., third edition, 1928).

Supervision of the School Plant

AYRES, M., WILLIAMS, J. F., and WOOD, T. D., *Healthful Schools* (Houghton Mifflin Co., 1918).

DRESSLAR, F. B., *School Hygiene* (Macmillan Co., 1913).

RAPEER, L. W., *Education Hygiene* (Charles Scribner's Sons, 1915).

Supervision of the Child's Health

MORRISON, W. R., and CHENOWETH, L. B., *Normal and Elementary Diagnosis* (Lea & Febiger, 1928).

WOOD, T. D., and ROWELL, H. G., *Health Through Prevention and Control of Disease* (World Book Co., 1926).

———, *Health Supervision and Medical Inspection of Schools* (W. B. Saunders Co., 1927).

Health Teaching Texts

BIGELOW, M. A., and BROADHURST, J., *Health for Everyday Series* (Silver, Burdette & Co., 1925).

COBB, W. F., *Graded Outlines in Hygiene* (World Book Co., 1922).

EMERSON, C. P., and BETTS, G. H., *Hygiene and Health Series* (Bobbs Merrill Co., 1919).

O'SHEA, M. V., and KELLOGG, J. H., *The Everyday Health Series* (The Macmillan Co., 1922), and *The Health Series of Physiology and Hygiene* (The Macmillan Co., 1915).

RITCHIE, G. W., and CALDWELL, G. L., *Hygiene Series* (World Book Co., 1920).

WILLIAMS, J. F., and DANSDILL, T., *Wholesome Living* (B. F. Sanborn Co., 4 vols., In press).

Criteria for evaluating texts. There are many different standards for evaluation of school texts. The following, based on the recommendations of the Bureau of Curriculum Research, Teachers College, Columbia University, are proposed:

I. *The underlying philosophy*
   1. Views health as a function of the body; a means and not an end.
   2. Recognizes the essential unity of man and therefore stresses mental and social aspects of health as well as the physical.
   3. Considers health as basic in the development of individuals and therefore the study of health an integral part of general education.

II. *The educational and health aims*
   1. Recognizes the basic character of habits, skills, knowledge, and attitudes in all aspects of health education.
   2. Emphasizes the positive aspect in all work and teaching, for example, correction of defects, not only dis-

covery of them; the development of power, not only determination of strength.

3. Stimulates pupils to regard health of the individual as an important and related aspect of community and national health.

III. *The subject matter*

1. Emphasizes sound physiological concepts developed in relation to the essential factual knowledge in hygiene, sanitation, and nutrition.
2. Avoids emotional and propagandistic type of unscientific writing.
3. Stresses the need for individual effort.
4. Places first things first; attention, therefore, to relative values.
5. Correlates with school, play, and home life of the child.
6. Organizes material to provide progression from grade to grade, and avoids the repetition of old and useless material in new forms.

IV. *Adapted to pupils' abilities, interests, and needs*

1. Recognizes that children are not interested in health but in living experiences.
2. Selects material to conform to the range of interests and abilities of children.
3. Stresses the facts, habits, skills, and attitudes most needed by children in living finely.
4. Uses a vocabulary suitable to age of children for whom written.

V. *Adapted to teachers' needs*

1. Provides vital material for teaching.
2. Recognizes that most elementary school teachers need assistance in health teaching and therefore supplies an adequate manual which will give:
   (*a*) Additional scientific material
   (*b*) Correlation procedures
   (*c*) Teaching devices and suggestions
   (*d*) References to suitable material
3. Serves as a guide by which the teacher may judge other health material.
4. Fosters freedom and initiative on the part of the

teacher without neglecting to supply procedures and sources for the untrained teacher.

VI. *Mechanical make-up of the text*
1. Durability of book.
2. Mechanics of book—paper, print, spaces, margins, topics, size, and weight.
3. Illustrations—number, color, artistic values, health values.
4. Index and table of contents.
5. Economy and expense.

Valuable material for teaching health may be secured from the American Child Health Association, New York City; Bureau of Education, Washington, D. C.; Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association, 525 West 120th Street, New York City; American Posture League, 1 Madison Avenue, New York City; American Social Hygiene Association, New York City; National Committee for Mental Hygiene, New York City; State Departments of Health; State Tuberculosis Associations; United States Public Health Service, Washington, D. C.; and numerous other private or public organizations.

Courses of study in health are available in syllabi of many public schools. From one point of view, the course of study in health should grow out of the life activities in schools. On the other hand, much of the essential health information arranged in courses of study will be found in the following:

1. Course of Study, Series No. 27. Health Education for Kindergarten and Grades I to IV. Series No. 43, Grades V and VI. Oakland Public Schools, Oakland, California, 1922.
2. Course of Study in Health Instruction, Elementary Schools. Detroit Public Schools, Detroit, Michigan. 1923.
3. Course of Study in School Health. State Department of Public Instruction. Harrisburg, Penna. 1922.

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BOWEN, W. P., *Kinesiology* (Lea & Febiger, 1921).

BURTON-OPITZ, R., *Textbook of Physiology* (W. B. Saunders Co., 1920).

CABOT, R. C., *Physical Diagnosis* (Wm. Wood, 1915).

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SLADE, C. B., *Physical Examination and Diagnostic Anatomy* (W. B. Saunders Co., third edition, 1923).

WILLIAMS, J. F., *Textbook of Anatomy and Physiology* (W. B. Saunders Co., 1923).

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HISS, P. H., and ZINSSER, H., *Bacteriology,* 6th edition (D. Appleton & Co., 1928).

JORDAN, E. O., *Bacteriology* (W. B. Saunders Co., 1921).

Biometry

PEARL, R., *Medical Biometry and Statistics* (W. B. Saunders Co., 1923).

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DEWEY, J., *How We Think* (D. C. Heath & Co., 1910).

GREGORY, C. A., *Fundamentals of Educational Measurements* (D. Appleton & Co., 1922).

HALL, G. S., *Adolescence* (D. Appleton & Co., 1904).

MCCALL, W. A., *How to Measure in Education* (Macmillan Co., 1922).

MONROE, Paul, *Principles of Secondary Education* (Macmillan Co., 1920).

NORSWORTHY, N., and WHITLEY, M. T., *Psychology of Childhood* (Macmillan Co., 1918).

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[31] These fifty books for the health educator have been selected by a group of graduate professional students for a professional library.

THORNDIKE, E. L., *Educational Psychology* (Columbia University Press, Vol. 1, 1913; Vol. 2, 1914; Vol. 3, 1915).

Health Education and Child Health

DANSDILL, T., *Health Training in Schools* (National Tuberculosis Association, 1923).

LUCAS, W. P., *Health of the Runabout Child* (Macmillan Co., 1923).

PAYNE, E. G., *Education in Health* (Lyons & Carnahan, 1923).

WOOD, T. D., *Health Education,* Part I of the *Ninth Yearbook* of the National Society for the Study of Education (University of Chicago Press, 1910).

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Heredity and Eugenics

CONKLIN, E. G., *Heredity and Environment* (Princeton University Press, 1923).

GUYER, M. E., *Being Well Born* (Bobbs Merrill Co., 1923).

MORGAN, T. N., *The Physical Basis of Heredity* (J. B. Lippincott Co., 1919).

NEWMAN, H. H., *Readings in Heredity, Eugenics, and Evolution* (University of Chicago Press, 1921).

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EMERSON, W. R. P., *Nutrition and Growth in Children* (D. Appleton & Co., 1922).

HAWK, P. B., *What We Eat and What Happens to It* (Harper & Bros., 1919).

HOLT, L. E., *Food, Health, and Growth* (Macmillan Co., 1922).

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LUSK, G., *The Science of Nutrition* (W. B. Saunders Co., third edition, 1920).

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FISHER, I., and FISK, E. L., *How to Live* (Funk & Wagnalls Co., fifteenth edition, 1921).

HOUGH, T., and SEDGWICK, W. T., *The Human Mechanism* (Ginn & Co., 1918).
LEE, R. I., *Health and Disease* (Little, Brown & Co., 1922).
WILLIAMS, J. F., *Personal Hygiene Applied* (W. B. Saunders Co., third edition, 1928).
WINSLOW, K., *Prevention of Disease* (W. B. Saunders Co., 1916).

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MCKENZIE, R. T., *Exercise in Education and Medicine* (W. B. Saunders Co., third edition, 1917).
WILLIAMS, J. F., *Organization and Administration of Physical Education* (Macmillan Co., 1923).
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ROBINSON, J. H., *The Mind in the Making* (Harper & Bros., 1922).
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PARK, W. H., *Public Health and Hygiene* (Lea & Febiger, 1920).
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Report of the New York State Commission on Ventilation (E. P. Dutton, 1923).

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American Journal of Public Health and the Nation's Health (American Public Health Association, 370 Seventh Avenue, New York City).

American Physical Education Review (American Physical Education Association, Springfield, Mass.).

Discobolus (525 West 120th Street, New York City).

Hygeia (535 North Dearborn St., Chicago, Ill.).

Journal of the American Medical Association (535 North Dearborn St., Chicago, Ill.).

Journal of Social Hygiene (American Social Hygiene Association, 370 Seventh Avenue, New York City).

Mental Hygiene (27 Columbia Street, Albany, New York).

Mind and Body (Mind and Body Publishing Co., New Ulm, Minn.).

Physiological Review (19 West Chase Street, Baltimore, Md.).

Public Health Reports of the United States Public Health Service (Surgeon-General, U. S. A., Washington, D. C.).

School and Society (Garrison-on-Hudson, New York).

Teachers College Record (Teachers College, Columbia University, New York City).

Supervision of Physical Education

General statement of major problems in supervision of physical education. From the discussion on pages 622 to 628 it appears that health education and physical education are concerned with different immediate objectives. Whereas the former points directly toward health values, the latter is concerned mainly with educational outcomes. The former is essentially a conservative, protective, and guarding function in the school; the latter is primarily a developmental, discovering, adventurous, and expressive function. Other significant contrasts might be made but it is sufficient to note that although health education constantly seeks to guard health, physical education at appropriate times may risk health to secure other objectives. Thus feats of physical courage may result in broken bones,

sprains, and lacerations. In general, however, the objectives of physical education are to be attained without loss of health and in fact with added increments of organic power and function. This is as it should be. Therefore, physical education should seek to surround its activities with those reasonable safeguards that will protect all from injury so far as possible and will select for activities of varied intensity those suited by the varied capacities represented.

It should be noted in consideration of these two phases of education that the children participating in the program of health education are conscious of the health values to be attained and are to be expected to become interested in ways and means of improving strength, gaining control, and developing abilities. On the other hand, although supervisors are rightly alert regarding the hygienic and sanitary implications of the activities of physical education, the children participating have other incentives, are driven by urges and desires of nature. Hence the supervisory safeguards are of no immediate concern to the participants.

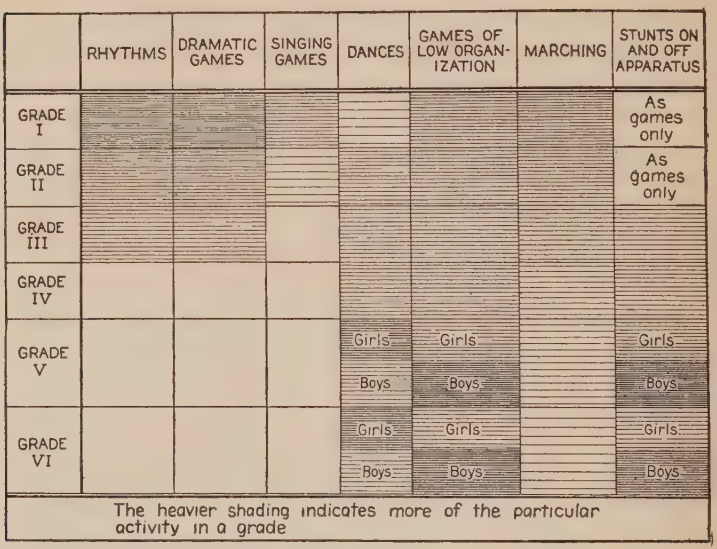
The main problems in supervision of physical education, then, are supervision of the physical condition of the child, and the condition of the environment, matters of concern to the supervisor and of little importance to children; and provision and supervision of a program, items of great concern to children. In these two lines of effort, methods of work and of teaching are of prime interest. While these two aspects represent the chief problems in supervision, seeking healthful and wholesome conditions for activity, and activity conducted to secure developmental and educational results, the supervisor operates best in intimate contact and coöperation with those immediately responsible for health outcomes and those responsible for educational outcomes in general.

The objectives of physical education in the elementary grades. Physical education at different times and places has been made to serve militaristic, selfish, and antisocial purposes. The ten-minutes-a-day calisthenics of the public schools has been a pauperized program from the beginning, the bare shreds of activity for keeping children awake in an enterprise often conceived narrowly and executed in dullness. If education is regarded as a corrective agency, intended to save man from his evil nature, directed with set customs and traditions in mind, then such an antiseptic program is well suited to secure sterilized results. But if it is considered a developmental agency, offering opportunities for the child to realize the most in his possibilities, helping him toward his best accomplishments, expansive rather than restrictive in character, then the physical education program will be shaped to serve such view.

The objectives of physical education have been stated briefly on page 625. Some extension of that discussion is necessary at this time.[32]

The objectives of organic development. Children in large numbers lack vitality. Aside from the influence of heredity, the only source of vitality is the development of the vital organs. This must be accomplished in childhood. There is little to be done in this direction in adult life. Because of the nature of organic systems, developmental and physiological, the use of the small muscles of the arms, neck, and legs has little effect on organic activity. Function of the vital organs is stimulated through activity involving the use of the larger muscles of the hip-joint and trunk. Movements in the aisles of the classroom are usually about as helpful toward organic development as sitting in seats and waving palm-leaf fans. Children must have activity

[32] The objectives of physical education have been more fully discussed in *Principles of Physical Education*, by Jesse Feiring Williams (W. B. Saunders Co., 1927).



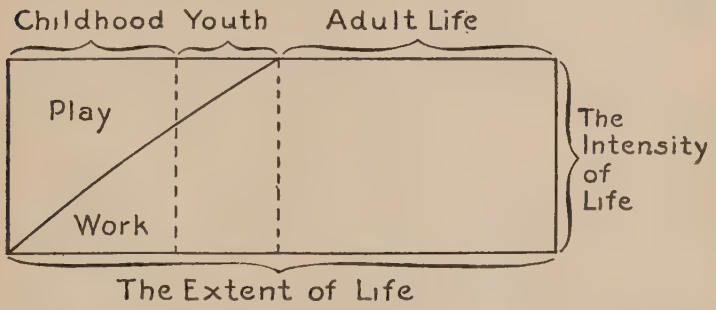
DISTRIBUTION OF ACTIVITIES IN GRADES I-VI

really calling into function the organs of life, or these organs will remain undeveloped. Running, jumping, climbing, twisting, turning, hanging, and like forms are the representative types of developmental activities. The above figure shows the distribution of activities in the first six grades, based on interests and favorable to organic development.[33]

The objectives of muscular skill. The interest in motor skill varies at different age periods. It is practically absent, as such, in the first two grades and is very strong in the fifth and sixth grades. The teaching of skills is related directly, however, to after-school participation. The school periods in physical education should be organized to teach many activities that will function in the child's life. It is important to tie the school and after-school life closely together.

[33] J. F. Williams, *The Organization and Administration of Physical Education* (The Macmillan Co., 1922).

Skills, therefore, that function in life either as utility accomplishments or as æsthetic and recreative values, are the skills to teach. Other views must justify themselves in terms of worth while educational outcomes. Unusual and esoteric skills, often the peculiar hobby of the teacher, have no place in the school. Ability to thrust the left arm upward and the right arm sideward is about as useful as ability to wiggle the ears. But skills of a utilitarian kind, as running, hanging, climbing, lifting, carrying, and of recreative and self-satisfying character, as swimming, dancing, and numerous other plays, are the objectives here.

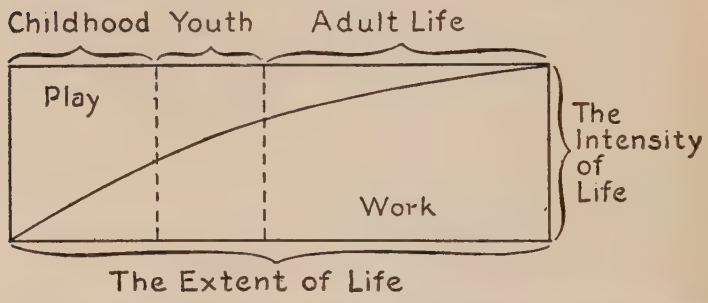


THE VIEW PORTRAYED THAT PLAY BELONGS TO CHILDREN AND NOT TO "SERIOUS-MINDED ADULTS"

The objectives in attitudes toward play. Children have an urge to play. It is natural. It impells them to its forms. Relatively prominent in childhood, this incentive grows less with age. At one time it was believed that play belonged to childhood, but that youth and adulthood should be given to work. This view could be diagrammed as shown above.

Not only the experiences of efficient living, the researches of physiologic and psychologic science, but also the changing philosophy of the day demand that we reconstruct the rectangle of life. Play should be so fostered in school that boys and girls come to believe in it, not as mere fool-

ing, not as wasted time, not as something permitted and disapproved, but as something worth while, promising, and altogether to be desired. The following diagram would then more accurately represent the attitude to be developed.



THE VIEW PORTRAYED THAT PLAY IS A PART OF LIVING AT ALL AGES

The objectives in standards. Since physical activities are not conducted apart from the reactions of children to numerous social and moral standards of immense importance to society, it is important to state that all the activities of physical education involving responses of individuals to manners, morals, and social conventions be conducted to secure their acceptance. Standards vary from time to time and place to place. The teaching of standards is best done when brought to individual consciousness and when they are adopted by the group and individuals. Transmitted by the teacher, set up by the teacher, they become effective when taken over by the children. Any compulsion by the teacher without active coöperation by the children is apt to result in utter neglect of the standards except in those instances in which the teacher's compulsion is present. There is enough experience on this point to make clear the emphasis.

The program of physical education. The realization of the objectives in organic development, muscular skills,

recreative attitudes, and social and moral standards require a program. The program has four aspects: (1) the activities, (2) the facilities in time and place, (3) factors controlling the activities, and (4) the leadership in teaching and supervision.

The activities. The activities are to be selected with reference to the nature of children and the needs of human society. The needs of children arise out of the growth and developmental changes of young people. The needs of human society are the visualized objectives of social groups in precise political organizations. Thus, while the biological needs of children of different nations will be very much alike, the social needs in a monarchy will be quite unlike those in a democracy. The activities in the figure on page 670 are selected to meet the needs of American boys and girls.

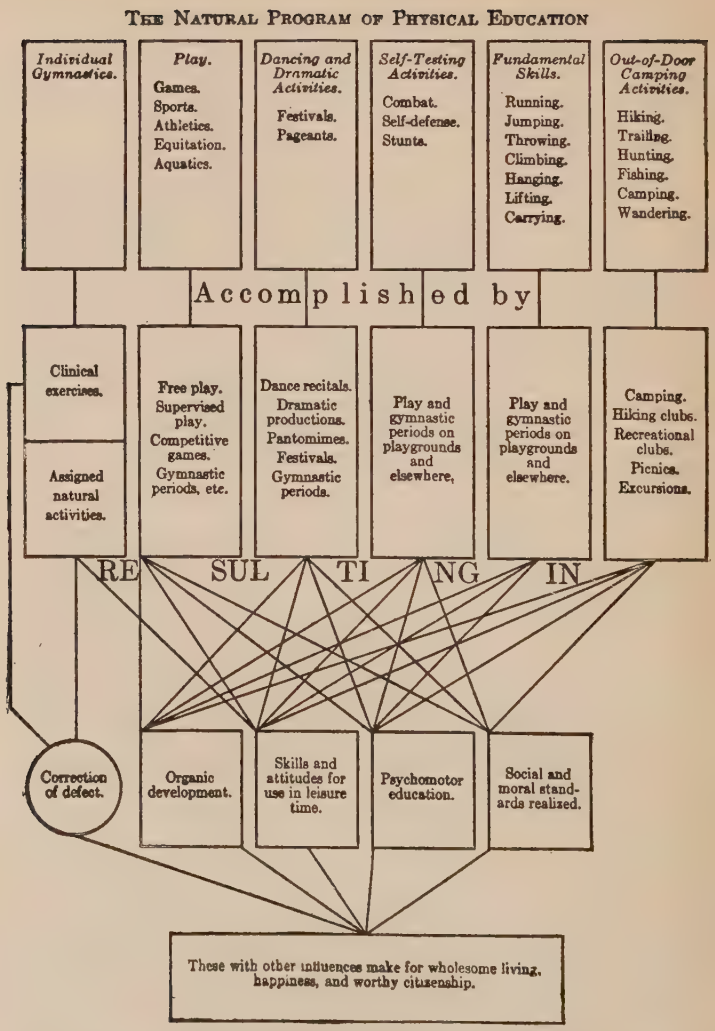
If there is generous allowance for these activities, less time will be needed for the purely corrective features of the program formerly so prominent. Some corrective work will be needed, however, by certain individuals, but to secure results it will be necessary to have individual corrective diagnosis and treatment. Treating these defective cases in groups where marked differences exist in defect and in individual is both unscientific and wasteful of much effort.

There are six divisions into which the activities may be divided.

1. Individual gymnastics. These activities are to be provided for those children in need of corrective exercises for growth or developmental defects. Expert teachers are needed for this section of the program.[34]

2. Play. Play out-of-doors is the immemorial way of education for children. Nature has employed it for thousands of years. The organization and supervision of its

[34] L. C. Drew, *Individual Gymnastics* (Lea & Febiger, 1922).



ACTIVITIES SELECTED TO MEET THE NEEDS OF BOYS AND GIRLS

forms are essential to meet modern environmental conditions and to secure outcomes in conduct that are serviceable to modern society.[35]

3. Dancing and dramatic activities. The folk, national, athletic, clog, and natural dancing provide a rich source in expressive, rhythmic interests. Dancing should be objective and expressive, wholly devoid of self-consciousness and pose. Ballet and other very artificial forms that at times creep into the program should be avoided.

4. Self-testing activities. Many of the games are self-testing. Tag is an old form of testing both runner and "it." Various stunts are included in this part of the program.[36]

5. Fundamental skills. Skills in throwing, climbing, hanging, running, jumping, lifting, and carrying should be taught in relation to activities that employ them. Thus, throwing in such games as dodge ball, climbing in use of the ropes, hanging in various positions, running in tag games, carrying (5th and 6th grades) in fireman's carry, lifting (5th and 6th grades) in life-saving methods, etc., are typical. The tremendous number of movements that man must make in ordinary life offers the justification for teaching throughout the schools the proper form and execution of functional skills.[37]

6. Out-of-door camping activities. Out-of-door camping and hiking offer a wide field through excursions, picnics, and camping trips for teaching numerous useful and educative motor activities. For the upper grades of the elementary school, the recreational clubs and camping organizations provide vital forms of physical education. The

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[35] J. Lee, *Play in Education* (The Macmillan Co., 1916). *See also* J. M. Tyler, *Growth and Education* (Houghton Mifflin Co., 1907).

[36] M. Rodgers, *A Handbook of Stunts* (The Macmillan Co., 1928).

[37] J. F. Williams, *Principles of Physical Education* (W. B. Saunders Co., 1927), p. 255.

Boy Scouts of America are at present conducting a research as a preliminary step to establishing a younger-boy program. This is evidence of the importance of this type of activity for elementary children.

The facilities in time and place. The activities of the program require time and place. The tragic results of the Physical Training Conference at Boston in 1889 are seen to-day in the general pauperization of facilities for physical education. Many schools are rapidly extending facilities and in some cities every elementary school built has a gymnasium and playground as an essential part of the plant.

1. Time. "Over the country the practice in elementary schools is a minimum of twenty minutes a day of straight physical education, not counting recess. When recess is organized and included, thirty minutes a day is the rule."[38]

Thirty minutes a day is inadequate if nothing more is provided. Elementary children need from four to five hours of vigorous activity daily. The school program can not provide this but with a playground as part of the school plant, activities after school can be organized in relation to the instruction given to the children in the school periods of physical education.[39] In short, the program of activities after school is a kind of measure of the worth of the program as a whole.

2. Place. The space requirement has been stated elsewhere in this chapter. It is sufficient here to call attention to space requirements for typical activities.

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[38] "A Study of the Status of Physical and Health Education in the State of New Jersey," State Department of Education, New Jersey, 1927.

[39] Out of 164 replies to a question submitted by the Bureau of Education to school superintendents, 143 reported that playgrounds were being provided in connection with all new school buildings.

SPACE REQUIRED FOR GAMES

	Players	Space Needed	Space per Player
Ring games	30-40	625 sq. ft.	18 sq. ft.
Tag games	30-40	1,400 " "	40 " "
Dodge ball	30-40	2,000 " "	50 " "
Volley ball	20	1,650 " "	80 " "
Captain ball	20	2,275 " "	113 " "
Playground ball ...	20	4,900 " "	245 " "

The factors controlling the activities. Many factors condition the program. Too frequently inadequate programs are excused on the basis of inadequate facilities. If there are no playgrounds, no gymnasia, no play rooms, the excuse may be valid, but a program limited to the classroom is not educationally defensible.[40]

In addition to facilities, activities must be selected in relation to sex, age, and individual differences.

1. Sex. Boys and girls after the fourth grade should be differentiated. Structural and functional differences in the sexes require this adaptation.
2. Age. Selection of activities with respect to age is indicated in the figure on page 666.
3. Individual differences. Handicapped children require activities selected with reference to their needs and capacities. The physical fitness of the child conditions the activities in which he may be permitted to engage. This fitness is determined by the physical examination.

The leadership in teaching and supervision. The program of suitable activities selected for the values of the activities in relation to children's needs and the needs of society, limited according to sex, age, individual differences, time and place, require leadership so that children may experience desirable outcomes. Since much of the program

[40] C. W. Hetherington, *A School Program of Physical Education* (World Book Co., 1922).

must be under the direct teaching of the classroom teacher, it is essential for proper educational results that these teachers have adequate training in professional schools and competent supervision in service.

Special problems in supervision of physical education. It is exceedingly difficult to supervise teachers of physical education who have only a practice and a method. They lack a *why!* The reasons for organic development, the importance of initiative, the worth while character of functional skills, the changing character of physical education due to increase in leisure time—these and other questions find the teacher too often uninformed. The easy way in teaching activities is to command an exercise and secure perfunctory performance. The more difficult thing is to seek constantly for self-discipline through the ideas that are taught in relation to activities that require self-control, to seek thoroughgoing participation when criticism of others tends to retard expression, to seek self-criticism of performance when so much of educational method, both lay and professional, teaches children to cover unworthy performance by an excuse or alibi.

Clearly the supervision of the teacher of physical education must deal with these handicaps. The teacher must be taught, shortcomings removed as far as possible, and the ideal of supervision in which the supervisor helps the teacher to help the children is clearly sought. To this end the problem must be particularized in terms of the needs of the teachers.

Kinds of teachers in physical education. In the main, there are two kinds of teachers—one has little or no training in physical education, is a general classroom teacher, and is without much ability and often little interest in this direction; the other is the special teacher of physical education who has had a major in the subject in normal school or university. The needs of the teachers vary.

In helping the general teacher, the supervisor should endeavor especially to save the teacher's time because of the many demands made by the supervision of *special subjects.*[41]

The general teacher may be helped through general meetings held for the purpose of interpreting to them the reasons for the things they are asked to do, to acquaint them with aims and objectives, to outline plans and programs, to instruct them in procedures or organization when special events, as motor-ability tests, or special days, such as field days, pageants, or demonstrations, are to be held.

In addition to general meetings for the elementary teacher, there will be need to hold in the individual school special meetings for special purposes. These may be to strengthen the teaching in a certain school, to set up an experimental program, to arrange for testing certain children, and other legitimate educational endeavor.

The special teachers should be called into conference in relation to specific problems. Thus, the junior or senior high-school teachers may be convened to consider the particular problems of their own field.

These conferences with teachers should seek constantly to perfect organization, to improve familiarity and skill with subject matter, and to secure effective and efficient administration of the program, records, and reports. But the machinery itself must not become the end; it is justified as machinery only as it remains functional and a means to the end. Thus, the supervisor should always be alert to help interpret the whole plan for physical education in terms of the aim, objective, and results actually accomplished.

Methods of teaching will vary greatly in the schools of

[41] The term *special subjects* should not be used because of its connotation. It is used here to denote a relationship that exists in many schools.

any city but the prevailing method will tend to reflect the emphasis indicated by the supervisor. If the supervisor indicates that discipline, obedience, accuracy in movements, inhibition, etc., are outstanding objectives, then formal, stilted, military-like method will prevail. If, on the contrary, it is deemed wise to aim for initiative, self-control, self-discipline, interest in wholesome activities, functional skills for the life now possible for children, then informal, free, self-selected, and self-directed programs will be increasingly made available as children grow in such abilities. There is in this statement no sharp line drawn between formal and informal method in physical education. Some activities should be conducted more formally than others but the vital point in the matter is the recognition that the formality employed is used for the purpose of organization of the activity; it serves no legitimate purpose beyond the important one of having the activity go on with desirable educational outcomes uppermost.

Whole or part method of teaching serial types of activities should be studied by supervisors because there is as yet no clear indication of the preferred way. Some work by Sheffield in teaching swimming and by Colby in teaching dancing shows a superiority for the whole method, but more experimentation is needed to establish or disprove the tentative results obtained.

If it is understood that method will vary in accordance with the results desired it should be clear that variation in procedure will be characteristic of teaching in the different grades. Thus in the first two grades, the periods should be very informal; in the third and fourth grades more organization is desirable; and in the fifth and sixth grades considerable organization is required. Increase in organization should proceed under the teacher's stimulus and guidance but should come from the children and reflect their purposes and their plans. There is no royal road to success

in this problem. It is marked, however, by familiarity with the inner urges of children, their capacities for development, the desirable standards of behavior, and a thoroughgoing conviction that power in any direction or trait is fostered by exercise of that power with satisfaction. The way to develop self-discipline is to give children an opportunity to exercise self-discipline with satisfaction.

Equipment for physical education. At the sessions of the famous Physical Training Conference at Boston in 1889, school men said in effect, "We want a physical education in the schools that will require no equipment." They got that for which they asked, with the usual sterilized results that follow an antiseptic demand. There still exists too largely the notion that physical education can be carried on adequately in a dark hall, a sub-basement room off the coal bins, or a meager rocky hillside or swamp land behind the school.

Wherever such standards remain, the clear development of modern equipment in modern schools shows how inadequate they are. Modern schools are recognizing that the lengthened school term and the enriched general curriculum bring new demands for equipment in physical education. The old school, as a place where children "learned," is being transformed into the school where children live. These newer developments are setting new standards for equipment in all the subjects of the school and particularly in physical education. The following statements represent, then, significant proposals for or points of view regarding equipment:

1. All playgrounds for boys and girls of the elementary school should be attached or immediately adjacent to the school.
2. Strayer and Englehardt[42] recommend sites of four to six acres to provide adequate space for outdoor equipment.

[42] G. D. Strayer and N. L. Englehardt, *Standards for Elementary Schools* (Bureau of Publications, Teachers College, Columbia University, 1923).

The Recreation Congress in 1923 recommended for elementary schools a minimum plot of eight acres.

3. The Recreation Congress of 1923 recommends 200 square feet of play space per child, with 100 square feet as the absolute minimum ever to be permitted. In this minimum Strayer and Englehardt concur.
4. For rural schools, a plot for a one-room school should not be less than two acres; for a two-room school not less than three acres; and for a three- and four-room school not less than four acres.
5. Every city elementary school should be constructed to provide a gymnasium or covered play space for use in inclement weather. This may be used also as the play room for the younger children.
6. In the gymnasium there should be a piano or phonograph for use in rhythm and dances, balance beams, apparatus for climbing, hanging, and swinging. Balls, nets and suitable equipment for games should be provided. Mats are essential for stunts and tumbling activities.
7. Every junior high school should have a pool. In school buildings for elementary and junior high-school pupils a pool should be part of the equipment.

Measurement of the results. The results of supervision should be measured in the improvement of children's performances. In reading, writing, and other school subjects where exact tests are available, it is possible to measure with considerable accuracy pupil achievement. In physical education, beginnings have been made in developing tests,[43] but lack of general use prevents any final deductions concerning them. Where the biologic factors are considered, however, the contribution of physical education to organic and physical development may be evaluated in terms of nutrition, strength, lung capacity, chest expansion, and heart action. There are standard norms for these items familiar to the experts who are competent to administer them. The items in most tests of accomplishment are:

[43] D. K. Brace, *Measuring Motor Ability* (A. S. Barnes & Co., 1927).

1. Height and weight measurements.
2. Measurements of chest expansion.
3. Tests of muscular strength.
4. Tests involving changes in the frequency of the heart.
5. Tests involving changes in blood pressure evoked by changes in position.
6. Tests based upon changes in blood pressure and heart rate evoked by exercise.
7. Tests of physical proficiency in a varying number of activities.

These seven groups embody (1) changes in growth and developmental modes due to physical education activities, (2) adaptive responses of the circulatory system to physical exercise, and (3) accomplishments in the performance of motor acts.

The following illustrates the items of the type of test used in the latter group:

CENTERVILLE ELEMENTARY SCHOOLS

Motor Efficiency Tests

School ..... Date.....
Name ..... Year.....
(last name) (first name)
Age..... Height..... Weight.....
(yrs.) (mos.) (ft.) (in.) (pounds)
Racial Data: Father..... Mother.....

Event	Record
1. Rope Climb	.....
2. Baseball Throw for Accuracy	.....
3. Standing Hop, Step, and Jump	.....
4. Potato Race (50 yd.)	.....
5. 50-Yard Dash	.....

Classification plans that measure accomplishment. In addition to tests of the types given above, supervisory plans for classifying children and reports on progress of the activity program are, in a limited way, a measure of results. The following form from the excellently organized program in Philadelphia indicates this type of rating:

Annual Score Record

Physical Education Activities of ..... School, Dist. No. .....

Supervisor in Charge	From	To	For School Year Ending	Classification	Curricular Activities	Extra-curricular Activities	Total Points Scored
	, 192	, 192	June 30, 192				
	, 192	, 192	June 30, 192				

EXPLANATION AND DIRECTIONS

CLASSIFICATION OF SCHOOLS BY GROUPS:

I. Schools with after-school playgrounds having paid teachers.
II. Seventh- and eighth-grade schools with adequate facilities.
III. Seventh- and eighth-grade school with poor facilities.
IV. Fifth- and sixth-grade schools with adequate facilities.
V. Fifth- and sixth-grade schools with poor facilities.
VI. Fourth-grade schools.

SCORING PLAN:

I. Curricular Activities.....Value, 100 points.
   1. Age Aim Work—Divide the average for the school year by two.
   2. Games—This rating is to answer the question "Were the games played?"
   3. Instruction—Based upon the knowledge and application of the course of study.
   4. Coöperation and Interest—Based upon interest in the work and effort to improve.

II. Extracurricular Activities—(Additional points to be added to the curricular activities score.)
   1. After-school Play—Opportunity for half-hour per child per week; one point per grade (fourth to eighth).
   2. Field Days—Full score given for complete participation only; partial participation in proportion.

SCORE:

The score is the total of points scored in curricular and extracurricular activities.

ACTIVITIES	Value in Points	Points Scored for School Year Ending June				
		192	192	192	192	192
I. CURRICULAR						
1. Age Aim Work	50					
2. Games	25					
3. Instruction:						
a. Tactics and Free Exercises	5					
b. Track and Field Work	5					
c. Games	5					
4. Coöperation and Interest	10					
Total	100					

2. EXTRACURRICULAR						
1. After-school Play	5					
2. Field Days:						
a. Local	5					
b. Sectional Track and Field Meet	1.5					
c. Belmont	3.5					
3. League Sports:						
a. Baseball	2					
b. Captain ball (2 Seasons)	4					
c. Dodge ball—Boys (2 Seasons)	4					
d. Dodge ball—Girls (2 Seasons)	4					
e. Soccer	2					
f. Volleyball (2 Seasons)	4					
4. Meets:						
a. Indoor Track—Boys	1					
b. Indoor Track—Girls	1					
c. Swimming—Boys	.5					
d. Swimming—Girls	.5					
e. Penn Relays	.5					
Total	38.5					
SCORE (Sum of Curricular and Extracurricular Activities)	138.5					

Form P 13—School Annual Score Record—School District of Philadelphia

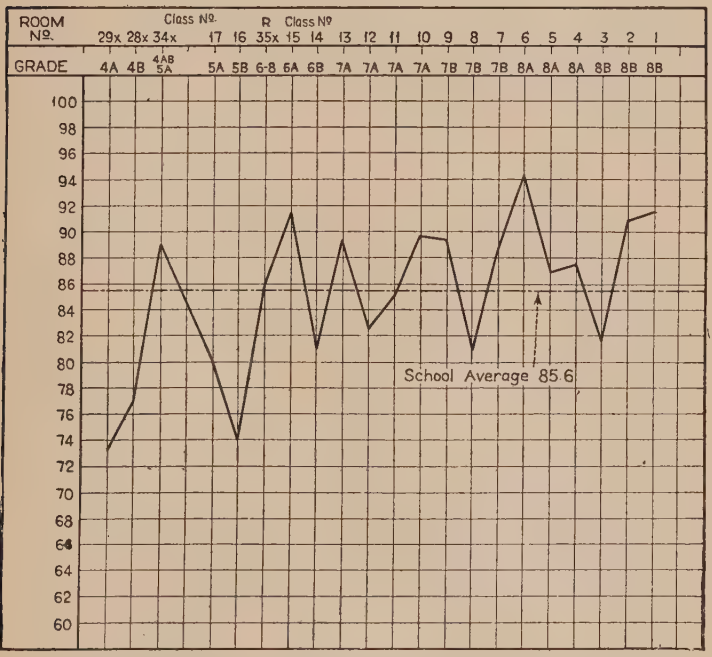
Games Played

Date	Name of Game	With Whom Played	Insert Score in Proper Column	
			Won	Lost
.....	.....	.....	.....	.....
.....	.....	.....	.....	.....
.....	.....	.....	.....	.....
.....	.....	.....	.....	.....
.....	.....	.....	.....	.....
.....	.....	.....	.....	.....
.....	.....	.....	.....	.....
.....	.....	.....	.....	.....
.....	.....	.....	.....	.....

Age Aims

Age	Standing Broad Jump (Feet and Inches)		Basketball Far throw (Feet)		30 Yard Dash (Seconds and Fifths)		40 Yard Dash (Seconds and Fifths)		50 Yard Dash (Seconds and Fifths)		Chinning (Times)	Knee Raising (Times)
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
8	3.4	3.0	14	12	6.1	6.3	7.4	8.2	9.0	9.3		
9	3.8	3.2	16	14	6.0	6.3	7.3	8.1	8.4	9.2		
10	4.0	3.4	18	16	5.4	6.2	7.2	8.0	8.3	9.1		
11	4.3	3.6	20	18	5.3	6.0	7.1	7.3	8.2	9.0	1	16
12	4.6	3.8	23	19	5.2	5.4	7.0	7.2	8.1	8.4	2	25
13	4.9	3.10	24	21	5.2	5.4	6.4	7.2	8.0	8.3	3	28
14	5.0	4.0	27	22	5.1	5.4	6.3	7.2	7.4	8.3	4	30
15	5.3	4.1	29	23	5.0	5.4	6.2	7.2	7.3	8.3	4	30

Age aims as factors in measurement. In the Philadelphia schools well organized age aims are set up for different age groups and accomplishment of these are scored. The score made in different schools serves to rank these schools or grades within the school. The form used for scoring and the age aims from eight to fifteen are given on page 682.

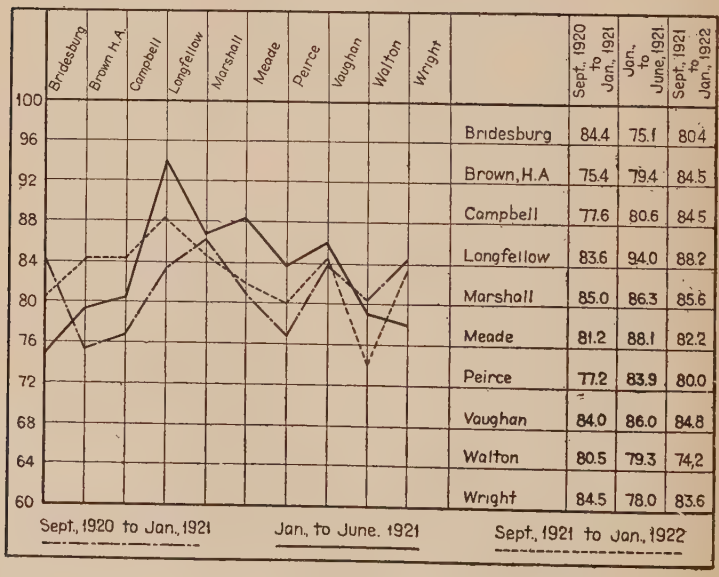


GRAPHIC COMPARISON OF AGE-AIM RESULTS OF A GRADE WITH AVERAGE OF THE SCHOOL

The accomplishment of age aims can be graphically represented and comparisons of any grade made with the average of the school (see the figure above), and of one school with another (see figure on page 684). The organi-

zation of procedures of supervision in the Philadelphia schools is more advanced than in any other system in the United States with which the writer is familiar.

Measurement of results involved in methods of supervision. The methods of supervision of physical education may be called the qualitative and quantitative. The qualitative method concerns itself with the help it may give the teacher in the selection and organization of material and



	Sept., 1920 to Jan., 1921	Jan., to June, 1921	Sept., 1921 to Jan., 1922
Bridesburg	84.4	75.1	80.4
Brown, H.A	75.4	79.4	84.5
Campbell	77.6	80.6	84.5
Longfellow	83.6	94.0	88.2
Marshall	85.0	86.3	85.6
Meade	81.2	88.1	82.2
Peirce	77.2	83.9	80.0
Vaughan	84.0	86.0	84.8
Walton	80.5	79.3	74.2
Wright	84.5	78.0	83.6

GRAPHIC COMPARISON OF AGE-AIM RESULTS OF A NUMBER OF SCHOOLS

activities, in the demonstration of activities, in the experimental procedure of testing materials to be taught, and in fostering proper attitudes in the teachers.

The qualitative method is personal. It requires contact of the supervisor with the teacher. It cannot be conducted from the office. It may be *casual*, in which case it is not worth much; or it may be directed toward definite points,

that is, it may be *specific*. The following, prepared for parents and teachers, illustrates the kind of detailed information that all supervisors should seek:

How to Judge a Program of Physical Education

Prepared for the Parent-Teachers Association of the Lincoln School

General observation of a program is not likely to be worth much. Detailed, specific looking for certain things is more valuable. Some of the questions raised here cannot be answered by observation; they involve conferences between teachers and parents, checking up on future attitudes and actions, and close observation of the pupil.

I. *General Considerations*

1. To what extent is the school and equipment hygienic, safe, and sanitary?
2. Is there adequate time provision for physical educational activities? (Some authorities state that elementary children need from three to four hours a day of activity using the large muscles of the body.)
3. Is there adequate provision for safeguarding the health of children and correcting the faults of growth and development?
4. Are there opportunities in the school for a carry-over in the life of the pupil of the activities of the program?
5. Are the children being studied scientifically with reference to their needs, their development, and their possibilities?
6. What percentage of the children engage in the extra-curricular play and recreational activities of the school?
7. Are the teachers of other subjects in the school interested in the physical education of your boys and girls? Do they dismiss their classes on time when the following is a physical education period?
8. Are the parents interested in the physical education of their boys and girls? Do they seek excuses for their children from physical education periods when such excuses would not be offered for general classroom lessons?

II. *The Physical Education Program*

1. Are the natural rhythms of early childhood used and developed? Is the desire for dramatic expression given wholesome opportunity? Are the desirable instincts and impulses of children for motor activity realized?
2. What motor skills are developed? Will they be used in the pupil's life, now or later? (Note particularly swimming, hiking, camping, dancing, and games.)
3. What opportunities are offered for the development of courage and self-reliance, sense of responsibility, good sportsmanship, and other social and moral values?
4. To what extent are artificial and meaningless activities carried on? What justification have such?
5. Does the dancing develop self-consciousness? Is it artificial, without meaning, or are there worth while ideas and wholesome emotions being expressed? Does it contribute to proper forms and controls in social relationships? Is the music used of a type to cultivate good taste in musical composition? Does this apply to social dancing?
6. Are the activities of the physical education period of a kind, and are they so conducted that they will provide for physiologic and hygienic results in all the children?
7. Are the activities selected and taught with reference to an erect posture? Is the emphasis in movement upward or downward?
8. Are the children interested and happy? As a result of this kind of experience in physical education, will the children tend to dislike physical activities? Or will they probably develop a skill in and a love for physical activities that will carry over into life?
9. Are breathing exercises used or are the activities selected sufficiently vigorous to produce deep breathing?

The qualitative method may be directed toward divisions of the program. In this type the supervisor pays attention to games, how they are played, participation, time schedules, selection, associated conditions, etc. Or dancing may be the objective of the supervisor, and music used, types taught, dramatic expression, relation to life activities, etc., will be examined.

Finally, the qualitative approach may be directed toward aspects of all divisions of the program. One may wish to check up on the use made of school activities on the playground, the organization of recess periods, sportsmanship in a school, and numerous other items.

The quantitative method need not be a personal investigation. It is conducted from the office and may take several forms. Examination of reports showing school participation in nonrequired activities, number of teams in a school, participation in field days, festivals, and other school recreational functions are samples of what may be learned through records and reports of physical education in a school. Such reports must be viewed relatively; the type of school, nationality of children, facilities, and other items condition the returns. Quantitatively, however, the results of the program in a school may be indicated by certain performance tests. Thus, if pools are available, the number of pupils who can pass a standard swimming and life-saving test [44] may be employed. Stecher's Physical Ability Scale may be used, Brace's Scale of Motor Ability, Sargent's Physical Test, Bancroft's Posture Test, and numerous other tests of function.[45]

Common errors in teaching physical education and suggestions for their correction. Common errors in teaching physical education arise largely out of traditional practice. Acquaintance with the scientific facts should lead to correction.

Development of health through calisthenics. This error comes from traditional practice that interpreted health in terms of muscle effort without recognition of the relationship of organic development to the natural movements of

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[44] N. and L. Sheffield, *Universal Swimming Text* (A. S. Barnes & Co., 1927).

[45] For a complete list of tests, *see* J. F. Williams, *Principles of Physical Education* (W. B. Saunders Co., 1927).

mankind. Substitution of vigorous play forms out-of-doors, involving the use of the larger muscles of the body, is required. Out-of-doors facilities are available in many schools that fail, for a variety of reasons, to make use of them.

Development of posture through calisthenics. This error comes from conceiving man's posture only in terms of muscles, ligaments, and bones. In addition to such items, it is important to recognize that emotions and ideas are vital determining factors in posture. Exercises of the most exact mechanical kind taught by a teacher who inspires fear in pupils can never secure other than undesirable postures; some of them are typical of the slave.

Correction in such matters is to be made by supplementing the technical, mechanical knowledge of proper bodily adjustment with efforts to develop a sense of self-respect, personal culture, and belief in self.

The use of breathing exercises for lung development and health. Breathing exercises are one of the most persistent fetishes. All the competent, modern physiology teaches that there is no need to use breathing exercises to supply oxygen, to remove carbon dioxid, or to bring bodily health. Physiologically, one's breathing should go on unconsciously as an adjustment of the respiratory mechanism to cellular need produced by the activity. Moreover, experimentation shows that children in vigorous play and games develop larger chests and have a larger lung capacity than children participating in formal exercises and breathing exercises.

This error is to be corrected by omitting breathing exercises from the program and including activities sufficiently vigorous to secure deep breathing as an accompaniment and resultant of the activity.

The error of overactivity by some children. Although vigorous activity adjusted to sex and age is desirable for the normal child, special cases require modification of ac-

tivity. All children may overdo, even the normals, if social pressure is too great and the winning or losing of games appears of paramount importance.

The determination of normals and abnormals is to be made by a competent medical examination. Overstimulation is to be avoided by teaching and supervision that emphasize the recreative and educational aspects of games.

The teaching of nonfunctional skills and activities without either utilitarian or æsthetic relationship to life. One of the common errors in physical education is the teaching of nonfunctional skills that never lead at any time in the child's life to use outside the school. Such are illustrated by mentioning various positions in calisthenics, the military gymnastic posture, absurd use of balls in relays devised for variety, some foot movements in marching, etc.

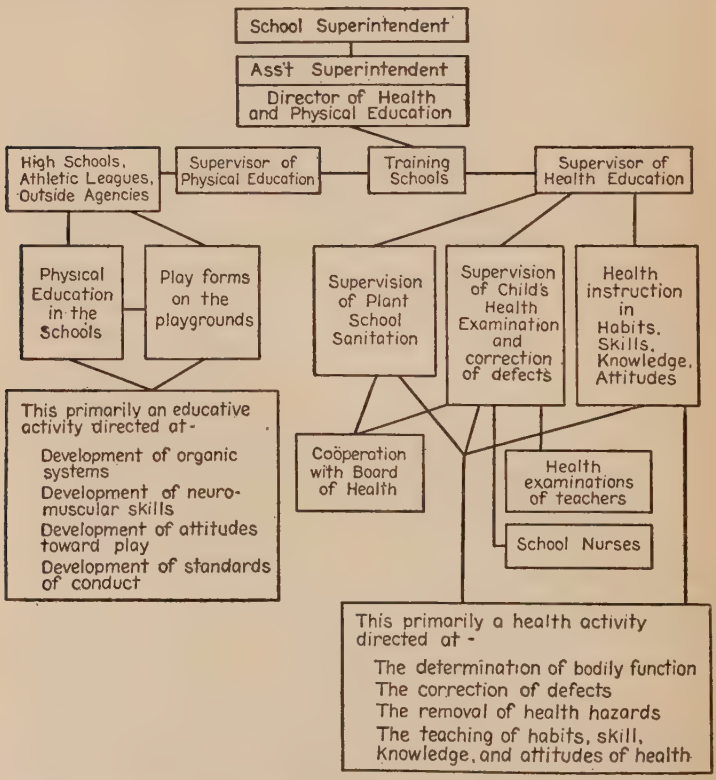
It is suggested that all practice in physical education be studied with reference to its form, and retained only as it contributes directly to use in life—the child's life of the time and place.

The error of failing to evaluate the concomitants of activities. Children learn the technical aspects of gymnastics, games, dances, and related forms. These are commonly called primary learnings. In addition, they learn certain things associated with the activities practiced. Thus in learning to jump there are primary learnings in how to take off, how to use the arms, and how to land. But there are associated learnings of how to train for jumping, how to rub sore muscles, how to warm up, etc. Moreover, there is also the learning of attitudes—a liking or disliking for jumping, a purpose to score fairly or to cheat, and numerous social and moral values. Now, to a certain extent, teachers are alert to only the primary outcomes and fail to plan for and to guide in the acquisition of desirable concomitants.

This omission is to be corrected by indication of what

the concomitants are and the setting up of plans that will recognize their appearance.

The staff. Because of the many contact points and related interests, health education and physical education should often be organized under one staff. Such an organization might take a form similar to the proposals given in the following figure:


School Superintendent
Ass't Superintendent
Director of Health and Physical Education
High Schools, Athletic Leagues, Outside Agencies
Supervisor of Physical Education
Training Schools
Supervisor of Health Education
Physical Education in the Schools
Play forms on the playgrounds
Supervision of Plant School Sanitation
Supervision of Child's Health Examination and correction of defects
Health instruction in Habits, Skills, Knowledge, Attitudes
This primarily an educative activity directed at -
Development of organic systems
Development of neuro-muscular skills
Development of attitudes toward play
Development of standards of conduct
Coöperation with Board of Health
Health examinations of teachers
School Nurses
This primarily a health activity directed at -
The determination of bodily function
The correction of defects
The removal of health hazards
The teaching of habits, skill, knowledge, and attitudes of health

ORGANIZATION OF A HEALTH AND PHYSICAL EDUCATION PROGRAM

It should be quite clear that the director should be a person who knows both health and physical education. He need not be a physician. It is far better to select a person

who knows education and the pertinent educational relationships in health and physical education than a person with the M.D. degree who lacks these essential educational and technical viewpoints. The health work in the schools should be under the board of education and hence the school nurses and other special teachers would be in this department.

The rating of teachers. Various plans are proposed for evaluating the effectiveness of teachers. All try to measure things that are not unitary and hence not subject to measurement. A very simple measure of the effectiveness of teaching is to test the product. What can the children do? If there is teaching, then there is learning. The two are related. Without teaching there is no learning. Thus the work of a teacher in teaching reading may be measured by the achievement tests in reading passed by her pupils. There are not as yet available standardized tests in the health or physical education field and hence this procedure is not available. Beginnings in this direction are the age aims of the Philadelphia schools.

There are certain points in estimating the worth of a teacher. They are not precise, purely objective, nor unitary, but are worth consideration until more serviceable standards are available.

1. Training of the teacher. The education of the teacher should have provided for enough general educational and cultural courses to afford a background of learning to the more specialized and professional training which should have prepared that teacher for the work performed. The usual weakness found in health and physical education is the normal school graduate who has a method and some technical material to teach, but who lacks a *why* and *resources* for the meeting of new problems. The teacher of health should have a scientific training mainly. There is nothing that can take its place. The teacher of physical

education should have his training in his head quite as much as in his heels. Ability to organize a program and administer activities that will serve the educational needs of the time and place is more important than ability to do giant swings or punt fifty yards.

It should be clear that a university graduate without professional training is unsuited for teaching in either of these fields. It is not uncommon to find men with 'varsity experience but without educational or physical educational training appointed to coaching or supervisory positions. This is a serious mistake and wholly without justification on educational grounds. If conducting a school was to be interpreted in terms of winning teams, then such procedure might be approved.

2. Experience of the teacher. Supervisors should always have had experience in teaching children and preferably as wide a related experience as possible. As a rule the teacher should be able to do what he proposes to teach. This is not always necessary but is generally so. One need not be an expert in all activities to be able to teach them well. In fact, teachers in training should not seek to acquire marked excellence in all practical technique but rather to become expert in several with familiarity with many.

The custom of giving responsibility to some person who has had no training and no experience is to be severely condemned.

3. Personality of the teacher. The following, stated by the author elsewhere,[46] expresses the points to be emphasized:

> It has often been said that teachers are born, not made. Teaching requires imagination, facility in seeing relationships, and qualities of leadership that appear inborn. The well adminis-

[46] J. F. Williams, *The Organization and Administration of Physical Education* (The Macmillan Co., 1922), pp. 96-98.

tered school of physical education does succeed in training teachers with attractive personal equipment by its emphasis on elements that bring out and enforce personality. These elements should be considered:

(*a*) *Ideals.* The point of view of the teacher is important. What are his ideals? Does he have vision of a training that seeks to help in molding better men and women or does he aim at physical values only? Has the teacher an attitude of service in an ideal field for the development of character or are the usual standards of the money mart controlling? The board of education or board of trustees concerned with choosing a teacher should be interested in the kind of ideals fostered by the institution that served as alma mater of the graduate in question. The teacher of physical education more than the teachers of other subjects has a significant opportunity because he is concerned with activities in which the basal elements, feeling and will, are so much a part of his work and also so much a part of human social behavior. Loyalty, willingness to coöperate with others, open-mindedness—these are essential characteristics expressive of high ideals for teaching.

(*b*) *Enthusiasm.* The teacher of physical education must be enthusiastic over the opportunities and possibilities of the work. He must believe in it and have convictions regarding its worth that will carry over into action.

(*c*) *Force.* In this field, as in other fields, force to carry out a program is highly desirable. There must be adaptability and a willingness to coöperate and work with others, but perhaps equally important is force of character that sees the goal and goes toward it. There must be something of the spirit that Percy Haughton brought to the Harvard eleven—a spirit that saw in every scrimmage the possibility of the winning touchdown.

(*d*) *Dress.* The street dress is important. Pertinent questions are suggested. What does the dress stand for? Does it portray earnestness, enthusiasm, carefulness, alertness? "The apparel oft proclaims the man" and the meaning of dress should not be lost in the consideration of the elements of personality. The gymnasium costume is equally important. For the teacher this matter of dress is vital because of comparisons made with other teachers in the school, because of certain accepted and generally respected customs, and because of influence upon the pupils.

(*e*) *Bearing.* The posture of the teacher is extremely important because good posture is so highly valued in school children and because example is very contagious. The bearing of the physical education teacher may be valuable in what it says. It is worth remembering that the body speaks, that we continually judge people's characters by the way they walk, hold the head and stand. The indirect values flowing out of a position of poise and body adjustment are so real that for the moral sanitation of the spirit, one should fight against maladjustments as one would fight against the plague.

Points in good teaching of physical education. The varied activities of physical education have some results in common. There are, however, specific values related to certain activities. The following items are arranged under different activities to indicate the results related to these functions. It is proposed to offer them without discussion, as points to be emphasized in the organization and teaching of the physical educational program.

In athletics, games, sports, play

1. The activities should function in the present lives of children, in periods of school play and recreation, and in the play periods out of school.
2. The program should seek to influence permanently the individual's attitude toward play and sport, to foster habits of play, and to develop self-reliance in planning and carrying out plans for pupil participation.
3. Situations will arise in such activities that may be used to further desirable character and personality traits. Ideals and attitudes reflecting good sportsmanship may be fostered by the teacher who is sensitive to such social and moral needs, who is competent to help establish standards of behavior, and who understands the hazards of undirected sport and fighting plays.
4. The program is conducted for educational out-

comes that may at times justify the accidents that unfortunately occur. It should be clear, however, that the activities should be conducted in a wholesome environment and supervised in relation to hygienic outcomes.

5. Equipment, instructional periods, and assignment of teachers should be administered to serve the best needs of all.

In dancing

1. The dance is to be viewed as something more than a series of steps. There should be evidence of the pupil's motive and desire to get the spirit of the dance.
2. The dance should not be a blind-alley activity. It should lead somewhere. An experience leading to other experiences worthy and acceptable is the goal. Evidence of this will be found in dance clubs, festivals, pageants, dance recitals, and numerous other dramatic presentations.
3. The dance should be viewed as an art form. Individual expression is to be desired. This expression should be marked by lack of self-consciousness; and by its general agreement with good forms or models.
4. The dance should be suited to the age, sex, interests, and skill of the children. This is true for other activities also.
5. The dance should be so conducted as to stimulate ideas, appreciations, and attitudes favorable to
   (*a*) Good form in dancing—avoiding mannerisms, erotic posturings, etc.
   (*b*) Good music—music of the best type should be employed.
   (*c*) Excellence in motor activity—to master technique as the artist in other fields does may be viewed as a desirable excellence.

In the gymnastic period

1. The activities should be suited to the nature and needs of the children.
2. The activities should be selected in relation to the interests of children and contribute to skills that function in life either as utility skills, as walking, running, jumping, carrying packages, climbing stairs, etc., or as recreative skills in games.
3. The activities should be so organized that wholesome physical activity will be secured by all children.

In play at recess. The recess period for play should be carefully planned to give the fullest opportunity for pupil leadership and control.

Organization is necessary to provide for arrangement of groups on playing space, selection of leaders, captains, and other officers, care of equipment, etc. This organization and arrangement should be a real project for the children under guidance of the teacher.

The children should learn to choose their own activities and to run their own games. This ability is gradually developed and hence the responsibility for recess activities should be gradually assumed.

The teacher, as the accepted leader for the time, should:

1. Know the games.
2. Participate in games, when possible.
3. Teach new games.
4. Act as final judge in controversies.
5. Encourage the timid.
6. Check disagreeable children.
7. Break up unsocial cliques.
8. Make constructive criticisms.
9. Be always sympathetic and enthusiastic.
10. Embrace every opportunity to uphold the ideals of courtesy, fair play, modesty in victory, cheerfulness in defeat —good sportsmanship.

In relief periods

1. The content of relief periods should contribute to relief from tension. Relief *drills* are therefore undesirable. Freedom of movement as in games, play, and stunts is to be secured.
2. Relief periods of four minutes out-of-doors are apt to be more valuable than similar activities of two minutes, again as frequent, indoors.

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